



GOTHIC CHURCH

We kick-start another super tutorial series this month: Gothic Church Interior Creation is our new 5-part in-depth tutorial covering modelling, texturing, lighting and rendering. There will also be a ZBrush chapter on creating a scary looking gargoyle – definitely one *not* to miss!

This month's cover is by talented artist, Ricardo C. Rocha – the full image can be seen in The Gallery



INTERVIEWS

Francisco A. Cortina & Roman Style



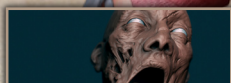
ARTICLES

Escape Studios



GALLERIES

Andrew Hickinbottom, Eugenio Garcia, Ricardo Coimbra da Rocha, plus more!



TUTORIALS

ZBrush Character Creation Series: Part 6 – Zombie, plus more!



MAKING OFS

'Constanza Bonarelli Bust' by Joesph Harford, plus more!



EDITORIAL

Welcome to ISSUE 42, coming to you from a snow-covered England (woo-hoo!). This month sees the start of yet another great 'super series' in 3DCreative – this time we're talking gothic church interiors, for which 5 wonderful artists will talk us through the principal techniques used in building a church interior. And to make things slightly more interesting, we also

welcome a modo artist to the series, in the form of **Robert Bergh**. So to re-cap, that's 3d Studio Max, Maya, Cinema 4D, LightWave and modo (we're good to you guys!). Part 1 of the series starts on **PAGE 79** and next month we'll briefly switch to ZBrush with **Jesse Sandifer**, who's going to take us through the sculpting of a stunning gargoyle, which our Max, Maya, Cinema 4D, LightWave and modo artists will later incorporate into their scenes in Part 3. We wanted to make this tutorial series unique, so in the final chapter of the series our 5 artists will be handing over to Zoltan Korcsok who will be handling post-production on each of the software renders. So there's lots to stay tuned for (I bet that 6-month subscription is looking more than tempting right now *winks*). Back to basics: this month we interview professional freelancer, **Francisco Cortina**, who boasts an impressive client list including the likes of DreamWorks, Square and Digital Domain, as well as titles such as *Final Fantasy*, and that's not to mention his recent role as modelling supervisor for *The Mummy: Tomb of the Dragon Emperor*. Check out **PAGE 9** to be wowed by Francisco's portfolio, and then take a short trip to our second interview for February, with illustrator and character artist **Roman Style** (**PAGE 21**), who's currently working for Virtual Fairground in Amsterdam. We love Roman's unique take on CG character illustrations, and took the opportunity this month to get to know a little about the artist behind the style!

Back to this month's tutorials, let's talk ZBrush! Not to disappoint all our ZBrush followers, we're back again with the latest from **Rafael Ghencev** – this time with a truly impressive zombie character on **PAGE 53**. We also welcome back **Rafael Grasseti** to this month's Speed Sculpting article, who has taken on the topic of sculpting a "Vegetation Creature" alongside the lovely **Magdalena Dadela** (**PAGE 45**). We'll be seeing more from these two artists in future issues, as Magdalena will be back again with the creation of a Fantasy Orc character, and Rafael Grasseti is going to be sculpting the finale of the ZBrush Character Creation series in May.

Our making of articles this month have been kindly contributed by **Joseph Harford**, who discusses the creation of his *Constanza Bonarelli Bust* renders (**PAGE 59**), and **Carlos Ortega** who talks cartoon bunnies with an article on the making of his recent *Bunny* female character (**PAGE 65**). We'll be seeing more from Joseph Harford next month, as he'll be stepping into the ZBrush Character Creation series to talk us through how to sculpt and texture a Vampire in ZBrush.

Hope you enjoy this month's offerings. See you next month for more!
ED.

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Freelance Character Artist

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Illustrator & Character Artist for Virtual Fairground

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10 of the Best 3D Artworks

SPEED SCULPTING

With Rafael Grasseti & Magdalena Dadela

ZBRUSH CHARACTER

Character Creation Tutorial Series – Part 6

CONSTANZA BONARELLI BUST

Project Overview by Joseph Harford

BUNNY

Project Overview by Carlos Ortega

DIGITAL ART MASTERS: V3

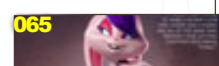
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GOTHIC CHURCH INTERIOR

NEW! Part 1 for 3ds Max, Maya, C4D, LW & Modo



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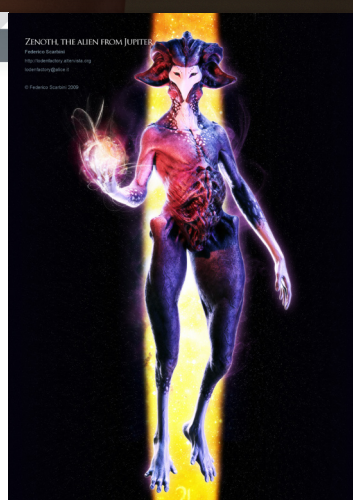
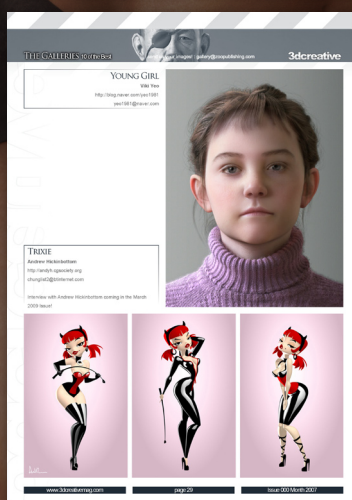
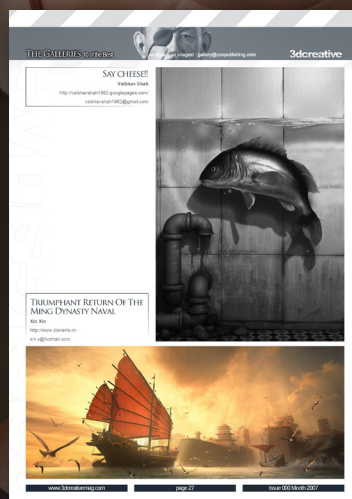
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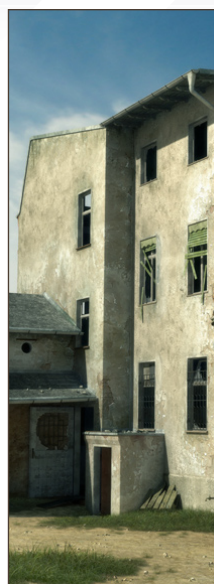


CONTRIBUTING ARTISTS

Every month, many artists around the world contribute to 3DCreative magazine. Here you can read all about them. If you would like to be a part of 3DCreative or 2DArtist magazines, please contact: lynette@3dtotal.com

Gothic Church Interior Creation

The start of this new tutorial series sees some familiar faces return to tackle our new subject. Using Richard Tilbury's concept sketch, these artist create our Gothic Church Interior for 3d Studio Max, Cinema 4D, LightWave, Maya, and for the first time modo.



ROMAN KESSLER

A freelance 3D artist in Germany. Since 1997 he's been working with LightWave, at first as a hobby. In 2005 he started working professionally as a freelancer, and began to use Maya in 2008 to work in a film company, although he still prefers LightWave. He loves the variety in his work, and he has a particular passion for the creation of environments.
<http://www.dough-cgi.de>
info@dough-cgi.de



LUCIANO IURINO

Started back in 1994 with 3d Studio on MS-Dos as a modeller/texture artist. In 2001 he co-founded PM Studios (an Italian videogame developer) with some friends, and still works for it as the lead 3D artist. He also works as a freelancer for different magazines, web-portals, GFX and videogame companies, and recently left the 3ds Max environment to move on to XSI.
iuri@pmstudios.it | <http://www.pmstudios.it>



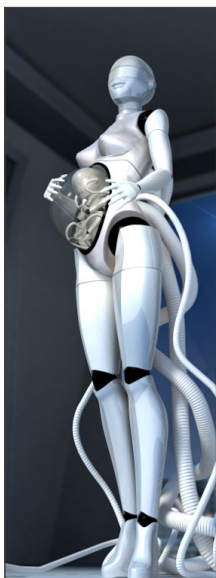
ROBERT BERGH

A few years ago he decided that he wanted to be a 3D game artist, went to a school called Digital Graphics in Stockholm, Sweden, and is now living the dream. You can often find him lurking around various game-art related forums, such as Polycount and GameArtisans, under the alias PixelGoat, sharing his knowledge with the community.
<http://www.pixelgoat.se>



NIKI BARTUCCI

A freelance 3D modeller in Italy. She started working in the field of computer graphics in 2000 as an illustrator and web designer. In 2003 she started using 3D software, such as Cinema 4D and 3ds Max. In that year she worked on *ETROM - The Astral Essence*, an RPG video game for PC, developed by PM Studios.
<http://www.pikoandniki.com>
niki@pikoandniki.com



WOULD YOU LIKE TO CONTRIBUTE TO 3DCREATIVE OR 2DARTIST MAGAZINE?

We are always looking for tutorial artists, gallery submissions, potential interviewees, 'making of' writers and more. For more information, send a link to your work here: lynette@3dtotal.com



FRANCISCO A. CORTINA

Has been a 3D artist in the CG industry since 1995, working on various movies and games whilst at Square, DreamWorks

and Digital Domain. In 2005 he formed his own company, Cortina Digital, to focus on providing high-quality 3D character development and consulting. He is currently working with clients in the film, games and medical industries.

<http://www.cortinadigital.com>
contact@cortinadigital.com

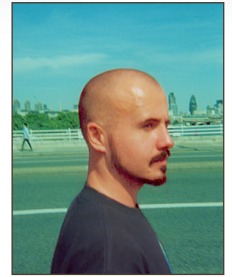


ROMAN STYLE

Illustrator & character artist from Holland, currently working for Virtual Fairground in Amsterdam, and as a freelance illustrator.

He's been working in games since 2004, after studying at the Art Academy. In his free time he plays with more analogue kinds of art, and aspires to become more independent, creating animations and more illustration works. He also likes flamingos & riding a bicycle in the sun.

<http://www.romanstyle.com>



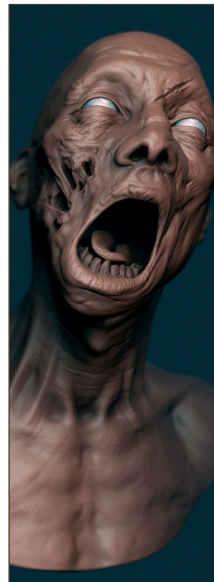
JEFF PRATT

Known as having one of the most colourful CVs around. He's done everything from being a NASA space shuttle engineer to a

Pixar animator to a culinary chef to a teacher.

For the past year he's been in charge of developing and teaching the animation course at Escape Studios. He's also starting development of an on-line version of his course which will hopefully be completed next year.

<http://www.escapestudios.com>



RAFAEL GHENCEV

A 25-year old character artist, based in São Paulo, Brazil. He's had a passion for art since he was a young boy

and saw his grandfather painting and drawing. He's since been searching to increase his skills and knowledge, and his passion for sculpture and drawing drives him to balance his studies between traditional art and 3D.

[http:// www.rafestuff.blogspot.com](http://www.rafestuff.blogspot.com)
rghencev@yahoo.com



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MAGDALENA DADELA

A character artist from Poland and a Vancouver Film School graduate.

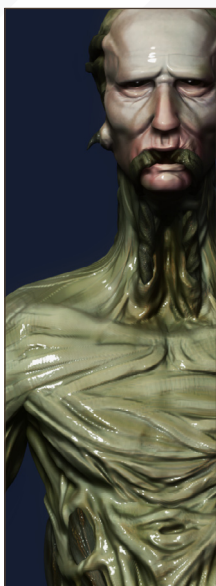
She is best known for realistic character

sculpture and anatomy studies. At present,

Magdalena is part of Ubisoft's Digital Arts Studio in Montreal, Canada, where she has contributed to various cinematic projects on titles like *Assassin's Creed* and *Far Cry 2*.

<http://www.mdadela.com>

magda.dadela@gmail.com



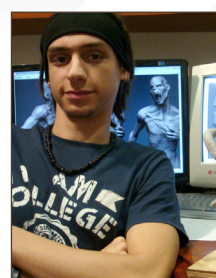
RAFAEL GRASSETTI

A Brazilian artist born in 1988. He decided to study sculpture about 3 years ago, and when he discovered 3D he became fascinated

with it. Since then he's been learning everything he can about art, and is a self-taught artist specialising in 3D modelling, character design, digital sculpting, texturing, and assets for feature film and TV projects.

<http://grassetti.cgsociety.org/gallery/>

rafagrassetti@gmail.com



JOSEPH HARFORD

Has been an avid artist since childhood.

After freelancing in advertising and film,

he worked in the games industry at

Crytek GMBH, the German games company

behind *Far Cry* and *Crysis*. He later moved

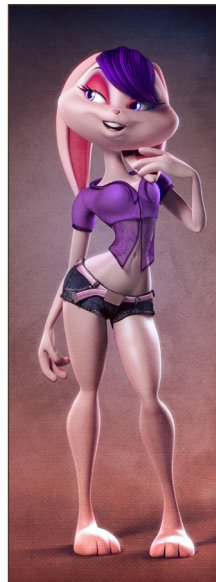
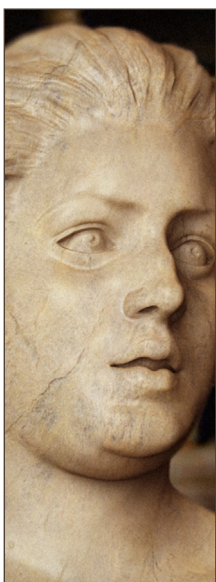
to Ubisoft as a senior character artist, and

now works as a freelance artist while running

ShineFX, a digital asset company, and

overseeing CGChain.com.

<http://www.josephharford.com>



CARLOS ORTEGA

A graphic designer who has been working

in 3D for about 4

years now. He's

currently working in

the TV department

of Guanajuato University doing motion graphic

design and 3D animation for TV spots and

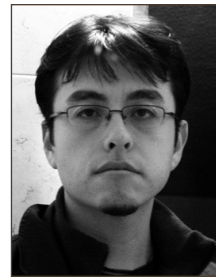
documentaries. He's also a 3D & multimedia

freelancer and a short film hobbyist at a

production house called TG Productions.

<http://www.zigrafus.com.mx>

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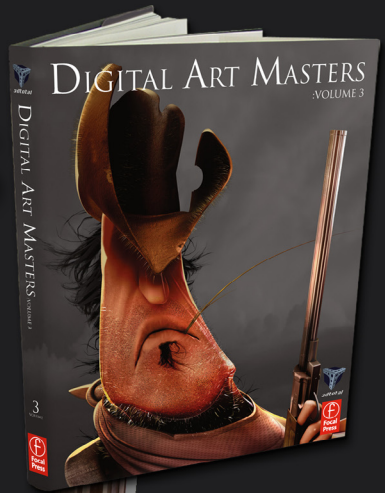


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**Sin City** Michael Cozens, Lead Animator **Smallville** Geeta Basantani, Lead Composer **Speed Racer** Aruna Inversin, Digital Composer **Star Wars Episode III: Revenge of the Sith** Andrew Doucette, Character Animator | Nicholas Markel, Pre-Visualization **Star Wars: Knights of the Old Republic (VG)** Arun Ram-Mohan, 3D Artist | Jessica Mih, Level Artist **Stargate SG-1** Aruna Inversin, Digital Compositing Artist | Daniel Osaki, Visual Effects Artist | Shawn Walsh, Digital Effects Supervisor **Stargate: Atlantis** Daniel Osaki, 3D Animator | Megan Majewski, 3D Animator | Alec McClymont, 3D Artist **Sweeney Todd: The Demon Barber of Fleet Street** Jami Gigot, Concept Artist **Transformers** Allen Holbrook, Animator | Henri Tan, Creature Technical Director

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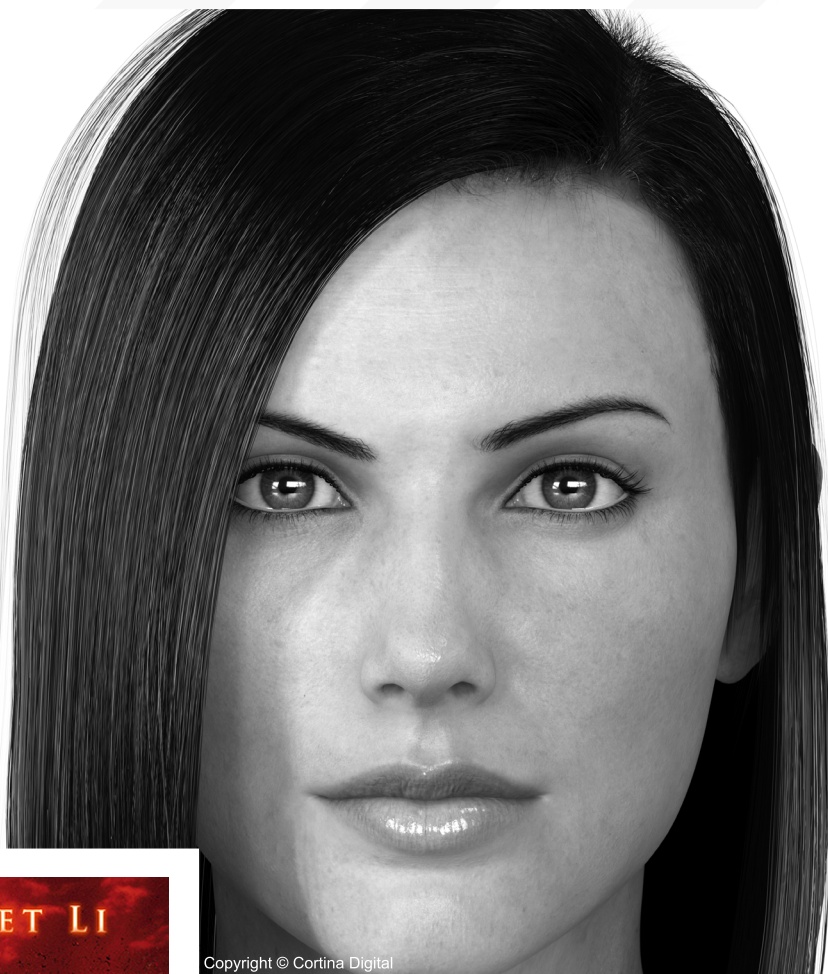
“THE BIGGEST CHALLENGE HAS BEEN THE LEARNING CURVE ASSOCIATED WITH OPERATING AS A BUSINESS AND THE LOGISTICS OF CREATING AND KEEPING TRACK OF BIDS, SCHEDULES, ESTIMATES, NDAS, INVOICES AND CONTRACTS. LIKE ANYTHING, HOWEVER, IT’S ALL ABOUT PRACTICE AND LEARNING HOW TO DO THINGS BETTER OVER TIME”

Francisco A. Cortina has worked across the feature film, video game and medical industries and went on to form his own company, “Cortina Digital” in 2005. He now specialises in high quality character development and has recently been employed as the modelling supervisor for *The Mummy: Tomb of the Dragon Emperor*.

FRANCISCO A. CORTINA

Can you tell us a little about the formation of "Cortina Digital" and what prompted you to start your own company?

It wasn't until early 2005, when I began doing some freelance work on the side, that I realised I really enjoyed it. Even though I loved working in a production environment, after spending ten years in the same industry, I started to feel like I needed to explore being on my own and finding my own clients. Shortly after that I started to operate as my own company, Cortina Digital, focusing on 3D character modelling, texturing, rigging, and hair development as well as consulting services. At the moment I'm operating as a one-man shop, but as my projects grow, I think this will change.



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It must be somewhat liberating to have your own clients but how does being "a one-man shop" compare to being part of a team? Does this ever provide any limitations other than perhaps the notion of workload? Being on my own has presented me with many new challenges, though I must admit that I really love to do both. The biggest challenges have been the learning curve associated with operating as a business and the logistics of creating and keeping track of bids, schedules, estimates, NDAs, invoices and contracts. Like anything, however, it's all about practice and learning how to do things better over time.

You have recently finished working on *The Mummy: Tomb of The Dragon Emperor*. Can you tell us about the experience and the challenges it presented?

I had the great opportunity to work with a very talented team over at Digital Domain as the Modelling Supervisor for the project. The scope of the project was quite large, so the film's CG work was split between D.D. and Rhythm & Hues Studios. Modelling-wise, we implemented a high-detail modelling pipeline using Maya for cage modelling, ZBrush for detail sculpting and CySlice for 32-bit displacement extractions. I worked closely with Stan Seo, our Texture Lead, as well as one of our CG Sups, Dave Hodgins, to better integrate our modelling, ZBrush sculpting and texturing workflows.



THE
ANIMATRIX
MATRIX ANIME

Overall, the film presented some very unique and difficult challenges. One of the biggest I believe was the integration of traditionally built 3D characters and creatures from Maya with 3D dynamics and fluid effects from Houdini. For example, for the main terracotta emperor character played by Jet Li, we first modelled and textured his outer Terracotta shell as well as his inner "scorched" mummy (using Maya, ZBrush and Deep paint). The character was then rigged and animated using both motion capture and key frame animation. Using proprietary techniques, the mesh was processed so that custom 3D effects like fire, molten lava and a physics-based cracking system could be applied in Houdini. The process was quite challenging, but in the end it was a great integration of various techniques that had never been used in such a way before and it achieved a very creative and detailed result.

I imagine every project presents its own set of particular problems in regards to different software, pipelines and project criteria, but what general practices have you seen alter most over the years from the point of view of character development?

I believe there are two things: the first is the emergence of polygon-based pipelines over the older NURBS-based systems. In 1995, almost all digital characters for film and special effects were built with Nurbs or some variation of it, carrying with it some very severe restrictions.



Animatrix sample Shot. Lighting by Greg Lev, environment by Jake Rowell, Jue body and hair model by Francisco Cortina, body textures by Steven Giesler. Copyright © Warner Bros



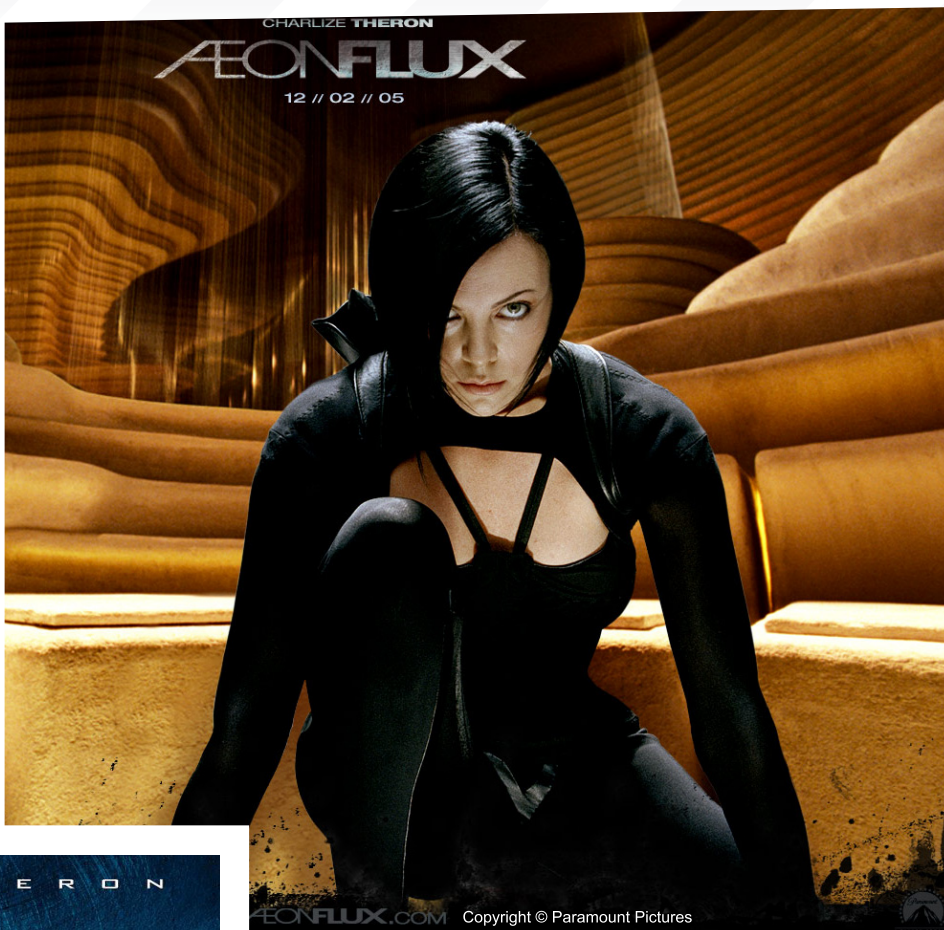
Most large animation and effects shops built their pipelines and tools around it, while most independent artists and small shops had little or no access to any special tools. All this began to change after Pixar's animated short *Gerl's Game* was released in 1997. In my opinion,

this was the catalyst that helped push polygon-based subdivision surfaces into mainstream movie and special effects pipelines. Polygonal modelling was used back then, but due to the lack of technology in hardware and software, they had to be dense and were difficult to rig



and animate. Most large animation studios and VFX shops stayed away from polygon-based pipelines until they had a way of using lower resolution polygonal cages to generate subdivision surfaces at render time, giving them the flexibility and efficiency they needed. Coupled with the incredible growth in cheaper and faster computer technologies and the video game industry, polygon pipelines and techniques have dominated the CG landscape. Our industry has not been the same since.

The second is the incredible growth and integration of motion capture with key framed animation in both film and games. Most of us that have been around for some time remember when motion capture was considered a "crutch" or a "cheat" by some people in our industry. I see many similarities with the advent of the still camera and how it was initially rejected by many, but eventually it was accepted as another



powerful tool for artists to use. Motion capture now holds a solid place as a key tool in animation to acquire real-life motions to be used and moulded to fit the needs of artists in both films and video games.

It is very interesting to see some of your wireframe models because you always hear people saying you must never have tri's or poly's with more than five sides and yet there are clearly a few in your mesh. There is no disputing the quality of your work so what is your opinion on these "unwritten laws" regarding mesh topology?

Prior to 2002, we were able to get away with using five-sided and three-sided poly's in certain cases because we mainly used RenderMan and MtoR's subdivision surface algorithm, which did a great job of properly interpolating our meshes. Since the advent of sculpting programs like ZBrush and Mudbox, which have much tighter polygon restrictions, I have become a big proponent of making sure models are more structurally sound and constructed with only quads and triangles.

Can you describe your approach to dividing the UV borders on your Jue model and the reasons behind the method?

That approach had a couple of reasons behind it. We first needed to break up the whole body into "tile" regions so that all the UV borders properly lined up with their neighbours. It was a crude technique built to work around an interpolation limitation with RenderMan's Catmull-Clark



subd algorithm. The second reason was to allow us to use 4096x4096 pixel maps for each body region, allowing for a much more detailed "paintable" surface area while keeping the render times and memory usage low.

Your characters look very lifelike with a very convincing appearance and quality. What techniques do you use to create the skin, eyes, lips and hair?

Skin is one of those elements which is extremely complex to simulate and at this point in time we don't have a working solution to simulate it fully. The best we can do is use approximation techniques, texture mapping and other light sampling methods like BSSRDF and subsurface scattering.

One of the most important aspects to simulating the look of skin is to create or generate a very clean and "unlit" diffuse map base. When sculpting the displacement, normal or bump maps, I make sure the landmarks on the skin (such as pores, blemishes, wrinkles and moles) line up properly with the diffuse and specular maps. I hand-build the skin shader out of a network of shading elements and pipe them together with the miss fast skin shader in Mental Ray. Once the shader network is built, I make sure to test the thickness and light scattering effect of the Epidermis, Subdermis and backscatter layers first. Next, I begin testing



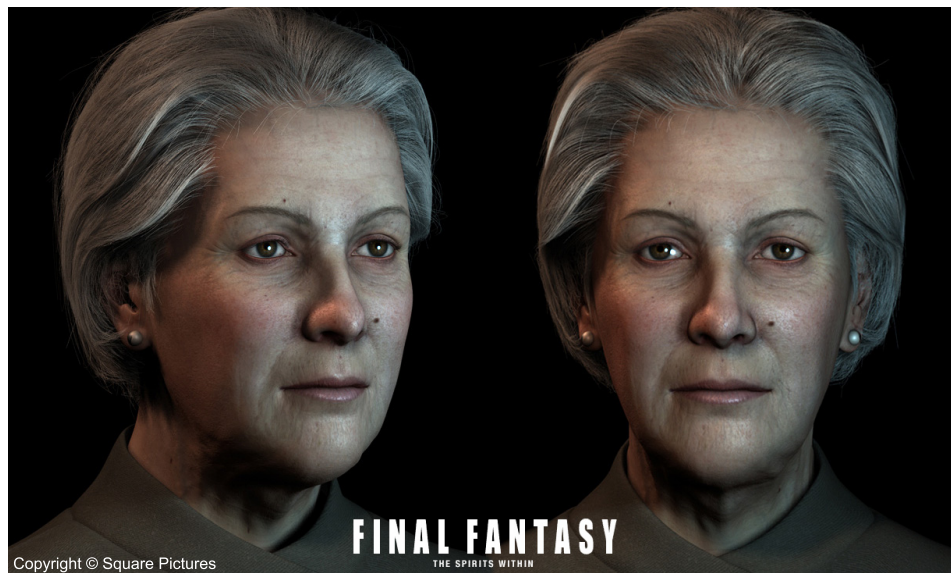
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the specular and Fresnel reflection controls, and implement maps to simulate the oil, reflectivity and dryness in skin. It's important to test each map separately to ensure they work as intended.

The eyes are essential to an expressive and believable character. After working with clients in the medical industry, my approach to modelling and rendering eyes has changed and I've become more aware of the importance of anatomy and motion. During modelling, I construct the eyeball in three main sections: the sclera, the iris/pupil and the outer reflective shell which also encompasses the cornea. I make sure the other eye-related elements like the conjunctiva (the thin membrane covering the sclera which makes the inner part of the eye appear more flat), the plica and caruncula are built and fitted properly. Keeping the edge layout on the eyelid structures even and making sure they match on both the top and bottom lids is very important. Building them that way allows for the tear and "water" catching surfaces to be built right over the top of it. The conjunctiva, whether modelled separately or just simulated



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Maxim**Hot**100
2000/2001

FINAL FANTASY
THE SPIRITS WITHIN

Aki for Maxim Magazine. Hair, bikini and Anatomy modeling by Francisco Cortina. Textures and face by Steven Giesler.
Lighting by Steven Giesler. GI pass and lighting support by Andrea Maiolo. Copyright © Square Pictures

using a deformer mesh, should coincide with the structure of the sclera and be connectable with the plica membrane. When preparing the shaders for rendering, I use a subsurface scattering skin shader on the sclera which has the front scatter layers desaturated and its backscatter turned off. On the outer eye layer I use either a standard phong or mia_material with carefully adjusted refraction and reflection settings. The refraction should be strong enough that the pupil of the eye looks like it's facing sideways when the eyeball is viewed laterally (1.4+).



Lips can be difficult to figure out because, like the eyes, they have both dry and reflective elements and have a peculiar way of stretching and compressing based on facial deformations. Building the lip structure evenly so that the edges on the upper and lower lips match up and are not too dense for animation is essential. Because the lips have a slightly different look and response to light than normal skin, I build control maps in the skin shader which isolate the lip area and enable control of the direct and indirect specular and reflective effects.

When modelling and grooming the hair elements, I always make sure to build the scalp meshes with the hairline contours and non-deformable head areas in mind. One of the hardest elements to simulate in CG hair is the subtle look of hair as it comes out of the skin near the hairline. With this in mind I build a separate hair layer for the hairline, which enables better control over those transition areas. The best way to approach grooming hair is to treat it like real hair and make sure it flows in a natural and very deliberate fashion. When lighting the hair and face I make separate lights which are custom linked, allowing for slight differences in shadow settings and, in some

cases, minor angle offsets. Similar to skin, hair is also very affected by the shading technology used to render it because it is highly refractive and absorbs so much light.

Sub Surface Scattering and shader networks seem to be a widely accepted, successful way of building convincing textures - but what of photography? How crucial is this element in the process and do you think it will gradually be replaced by more sophisticated shaders?

Certain objects can be fairly well replicated using current SSS technologies, but I believe skin is one of those very difficult cases where it sometimes helps to not try and procedurally replicate all of its features. Some companies have already developed proprietary shaders that attempt to simulate many elements in skin like veins, pores, peach fuzz, moles, blemishes, etc., in addition to the base SSS algorithms. We will continue to see improvements in laser (LIDAR) scanners that capture "polarized" diffuse imagery and 3D data simultaneously. For real-life objects or actors this is the ideal method. Some companies offer these services, but some of the captured colour data is still not very high resolution. Some studios use their own hybrid 3D and photo rigs which quickly scan and



photograph their subjects, while many just use third party 3D scanning services and use studio photography setups to do their texture shoots. Still, photography of textures with a digital camera is the mainstream and remains the most affordable way of capturing texture data for the majority of objects we create.

From your un-textured meshes, it looks like you use a conventional poly modelling technique and not a sculpting package such as ZBrush. What do you feel are the advantages of this way of modelling?

These days I use a hybrid modelling method where I build models in two phases: cage modelling in Maya, then detail sculpting and displacement/normal extraction in ZBrush or Mudbox. During these two phases, the model is swapped back and forth to refine the base mesh, apply UVs, extract initial maps and begin rigging and animation tests. The advantage of this method is that it allows for the model structure to be more easily integrated into the animation and rendering environment, whether I'm using Maya, 3ds Max or XSI. I think this is less of an issue for artist's keeping their models within the 3D sculpting programs, whether they are creating them only as a high-res maquette or deforming them using features like "transpose" in ZBrush.

Did you find it strange to see Aki appear in *Maxim* magazine?

When management asked us to remodel Aki and put her in a swimsuit we were both excited and surprised. It was strange because we didn't expect it, but we definitely welcomed the opportunity and challenge!

Thanks for taking the time to talk to 3DCreative magazine, Francisco.

Absolutely. Thank you for giving me the opportunity to answer your questions and I hope our brief discussion is useful to artists in our industry.

FRANCISCO A. CORTINA

For more work by this artist please visit:

<http://www.cortinadigital.com/>

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Interviewed by: Richard Tilbury



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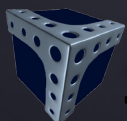
Introduction:

The original character of the Swordmaster was created by Seong-wha Jeong and we had 3DTotal's in-house 3d artist Richard Tilbury, re-create the character in 3dsmax as well as create the textures in Photoshop, in our new precise, step-by-step tutorial for highly polished, low polygon game character with detailed texturing for real-time rendering. We have also converted the tutorials into Cinema 4D, Maya, Lightwave and Softimage platforms. Even if you are not a user of one of them, the principles should be easily followed in nearly all other 3D applications.

The Swordmaster tutorials is spread over 8 Chapters which outline, in detail, the process for creating the Swordmaster below are the details.




- Chapter 1: Modelling the Head
- Chapter 2: Modelling the Torso
- Chapter 3: Modelling the Arms & Legs
- Chapter 4: Modelling the Clothing & Hair
- Chapter 5: Modelling the Armour
- Chapter 6: Mapping & Unwrapping
- Chapter 7: Texturing the Skin & Body
- Chapter 8: Texturing the Armour & Clothing



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"I TEND TO STAY AWAY FROM CG CLICHÉS SUCH AS SCI FI AND FANTASY, AS THEY DON'T HOLD ANY INTEREST FOR ME. I LIKE IMPERFECTION, TRUE BEAUTY AND I TAKE MY INSPIRATION FROM PRESENT DAY FASHION AND CULTURE, WITH A TOUCH OF NOSTALGIA"

Roman Style has captured the attention of many by producing some 3D characters that are a little different to many we see today. He has a great outlook on his art, cultures and life and really brings these ideas through in his renders. We quiz Roman about where he gets his inspiration and where he thinks all of this will lead.

roman STYLE

ROMAN STYLE

Your website describes you as a "Three Dimensional Graphic Character Artist Extraordinaire!" This is a great title and I would like to know how you think your work differs from the more standard 3D character images we see?

That title wasn't meant too seriously [Laughs]. I just really don't like to be categorised, so I had to take such long title! I suppose my work differs from others in terms of the themes and subjects I tend to choose. The colours and aesthetics I choose seem different too; I like it to be bold and



edgy. Some people like it, some not. For instance, my "Booty Princess" will not appeal to everyone, although I believe it's closer to the actual sensuality of a woman than other photo-model-based works you will find around. I tend to stay away from CG clichés such as Sci Fi and Fantasy, as they don't hold any interest for me. I like imperfection, true beauty and I take my inspiration from present day fashion and culture, with a touch of nostalgia. And as I don't really approach my work as being "3D", whatever gets the job done works. 50 percent or more of the "magic" happens in Photoshop. I don't like to texture and play around with render settings for my personal work too much, so I keep it simple and straightforward most of the time. Some works are even screengrabs straight out of Mudbox and then painted over (ie. the "EVIL" trio) Other works may be intended for animation so then my approach may differ; for instance I just picked my "Boxeur Feminine" stuff up again for a short animation, so I spent some time cleaning it up and bringing it up to a 2009 level.

It's great to see such original work and as you say, less of the clichés. Do these preferences also apply to other art forms, such as the type of movies you like? As there are so many Sci Fi and Fantasy films out there, do you tend to avoid these?

I don't try to avoid anything, but since I was a kid, I've never really been



able to relate to dragons or spaceships. However I did like movies like *Star Wars* and *The Goonies* back then, so I guess an appreciation of Sci Fi/Fantasy is somewhere in my system. Nowadays I like to watch films and animation that hasn't come from the States. I've not checked out any of the big CG animation films since *The Incredibles* - they just don't attract me. The last movie that really inspired me as an artist was *Songs From The Second Floor*.

Where are you working now? What is it like? And does your boss ride you like a slave!?

I just started working for a new Dutch company in Amsterdam, called Virtual Fairground. I've been there for just a few weeks now, so I'm still settling in and starting up. It's a good creative atmosphere and I get to work with both old and new colleagues, so that's good. I really don't like to be ridden though! I still try to do personal and illustration work in my own time, to keep me focused and sane. I think it's good to have phases in your life, so the variety of being in the office, doing freelance and doing personal work is important for me. Also doing "nothing" is important too!

Congrats on your new job! Do you have much creative freedom with your projects here? And do they embrace some of your alternate ideas?

Well what can I say ... it really depends on the project, but I get my space and input. I think that nowadays - and maybe always really - it's hard to take big creative risks, especially with projects getting longer and budgets bigger. Creatively my vision could be a bit risky, although I don't really aspire to do, or lead, big projects. But my time will come, it's just a matter of improving and reinventing yourself every time and also taking the time to pause now and then. I'm in such a pause right now. For now I take much more enjoyment from partaking in a quality team effort than from boosting my own creative ego.

I can see that your studies and initial path led you through drama, theatre and writing, so can you tell us, why the switch to CG? And what sparked it all off?

Yes my study was based on the idea of bringing old theatre and it's storytelling together with new interactive media and creating a hybrid: "Virtual Theatre". My interest initially came from the interactive and gaming side, as I've always enjoyed gaming and the art aspect of it - I was a real fan of the golden years of Sega and such. Still I wasn't doing too much with CG as I was doing mostly graphic design and some drawing. The spark came from the first and only 3D class I had; it led me to finding out about the world of animation shorts, and the works of Sparx*/SavTheWorld! and Studio 4c. Most importantly, after seeing the initial trailers for *Molly Star Racer* and *Tekkon Kinkreet*, I was triggered by the idea of being able to make such small wonders on my own. So the first thing on

my list was to create a "living" thing, as in *Weird Science* - speaking off which, that might have been the very first sparkle [Laughs]. A few weeks after that first 3D class, I had my first blob dancing around and from that came the others. I made some shorts on my own while I studied and I've never actually done much other than characters since then, and then only when I needed to.

Your character "Skater Boi" seemed to attract a lot of attention. Can you tell us how he was conceived and how he evolved through to the final piece?

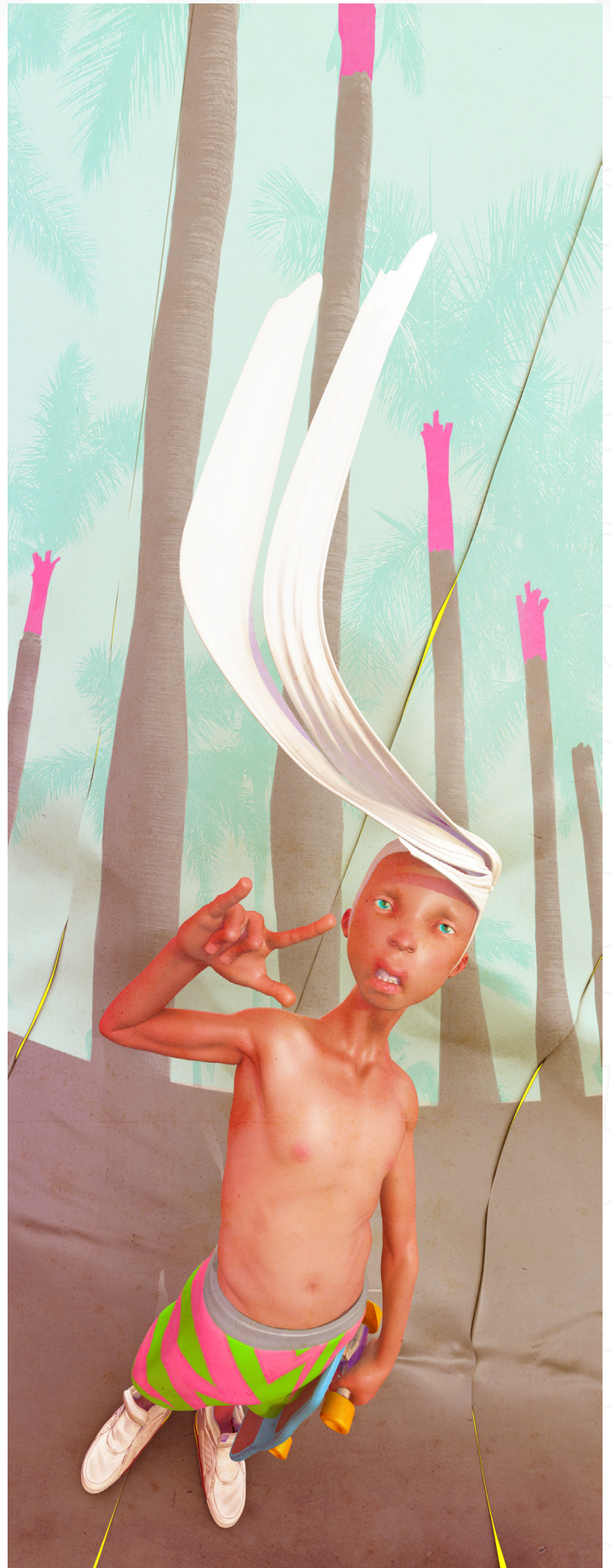
The first step in creating "Skater Boi" came just after Mudbox was released. The new software and possibilities made me wonder how it would benefit me, especially as I don't do monsters and hi-res realism. So it actually worked out better than expected, as my previous experiences with ZBrush had been less enjoyable. But I found Mudbox to be much more expressive and it's really changed my approach to creating characters now.

I had planned three illustrations - a triptych - illustrating an 80's skating Prince. One fell off during the progress, although I might pick it up again later. The whole idea came from an interest in skating culture, especially of the 80's-90's period, and also the fashion and colour of shoes at that time - and from my own youth. As you see the character is based on just a few elements, which keeps him elegant. But there are details and nuanced accents to be found here and there, just to give him a certain spark, a certain sense of reality. I'm now in the progress of getting him printed out, and getting some molded figures made of him.

I like the skating culture and lifestyle too; is *Lords of Dogtown* one of your favourite films? I like it, but I think the documentary was better.

Yes indeed, I haven't seen the movie, just the documentary actually.

But I love that kind of attitude and flair that you can also see in movies like *KIDS* and *Wassup Rockers* - rockstar punks that don't play any



instruments! Most of my inspiration though comes from the stereotypical way it was portrayed in cheesy 80's films, so basically the laid back, "dude" stereotype. I also like the fashion and music from then - great inspiration.

You seem very focused and passionate about the particular style and type of work you want to pursue. With this in mind, do you have a dream project you would like to work on?

Dream projects ... too many, too little time [Laughs]. Up to now most of my professional work has been really far from my own creative vision, so one dream project would be one with me leading the visuals. Also I would still very much like to be active in making children's entertainment - something that is more rich and mature than those that around now, who mostly seemed focused on franchising. For instance, I very much like old series such as *Alfred J. Kwak*, *Sherlock Hound* and *Maple Town*, although it might just be nostalgia talking. But that aside, I'd still like to get back into making short films as I've only been able to do that while I was studying. And I have evolved so much since then. I would love to pick up such things as my "Boxeur Feminine" and actually start some actual production with it. So maybe in a few years I'll be doing that, creating my own IP's and independent films. Also I feel I have got much more to put into illustrations, sculptures and such personal work - I've been too lazy in the past few years!

Well it sounds like you have so many things going on you need to be lazy and relax every now and then. Do you have any interests that are very different to your art to give yourself a bit of a break from it all until you dive in again?

I like to build up bikes and ride, fixed gear, no brakes. I did some bmx'ing years back, then stopped for a while and now I've found a new way to enjoy biking again. So I've just finished my second bike and I'm looking forward to an early spring kicking in. I enjoy strolling on the streets both on



foot or bike; being outside is a great inspiration for me. And I like to party and go out - as I said, music and the nightlife can be quite an inspiration. Not much time is left in the week after working full time - weekends should be longer!

Your website says you are available for "work, play and such" and just wondered what the most interesting offer is that you've had to date?

Well, it's never really gone passed work-related offers to be honest - so no play and such yet! I'm still open for offers though as I really like to play.

ROMAN STYLE

For more work by this artist please visit:

<http://www.romanstyle.com/>

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Interviewed by: Tom Greenway



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escape studios

Escape Studios is a school offering expert tuition through industry-proven training in all areas of computer graphics from visual affects and games, to animation and visualisation. World class experts and relationships with the most highly regarded companies provide Escape Studios with the necessary tools to kick-start a career.

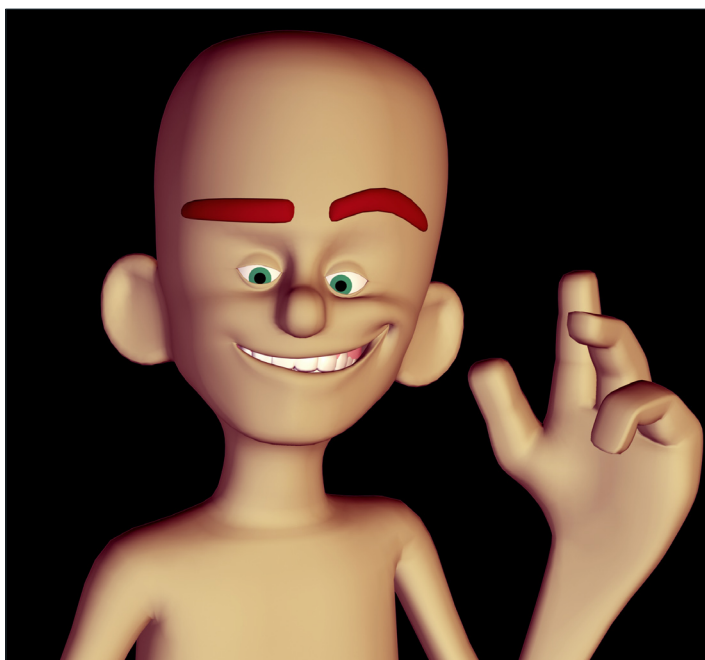
Escape Studios

JAMES SINDLE – 3D SUPERVISOR, THE MILL

Thanks for taking the time to talk to 3DCreative, James. As a graduate of Escape Studios can you tell us a little about how valuable the course has been to you and your career at The Mill?

The course I attended at Escape turned out to be quite a crucial part in kick-starting my career in the industry. Firstly you gain a strong base of knowledge really quickly, which you can then take into a job with confidence, and you are also surrounded by experienced industry people the whole time you are there. This gives you a great opportunity to meet the right contacts, which is as equally important in gaining work as anything else.

You mention in your interview that you consider yourself to be a “generalist”, who covers a multitude of disciplines. How many of these skill sets can you attribute to the Maya Core Course and do you see this broad coverage as a necessary part of surviving in your industry? No matter what part of 3D you end up following, either as a specialist or a generalist, it's vital to



get a broad knowledge base of everything, especially if you are working in commercials. You may be only an animator, but when things get sticky in the middle of a project you may be called upon to do a number of different tasks.

Also I find doing the same thing all the time can get boring, so if you are trained in all disciplines of 3D it gives you scope to move around tasks from time to time.

Do you find that an intensive course is the best way of getting industry savvy and how much prior experience or knowledge do you feel is important, if any?

I actually taught myself Maya for about a year before I attended Escape, and even with this basic knowledge I think I was able to make the most out of the course, because instead of going in totally blind, I already had a stack of problems and questions to be answered. I don't think this is vital but there is never any harm in preparing. Escape prepares you as much



as it can for the industry - when I was there, not only did we work on all the skills of 3D but through their strong ties with other companies they organised trips to various post houses so we could see how those skills translate into the real world, which was really interesting.

You have collaborated on and supervised the recent "Drench" advertisement which many people will remember fondly. What were the main challenges this project presented and what did you learn most from the experience?

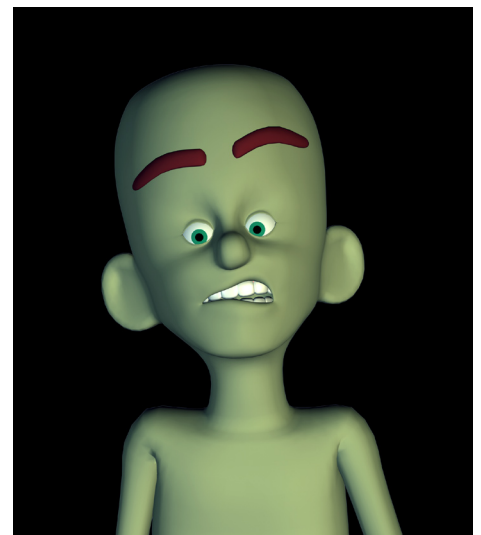
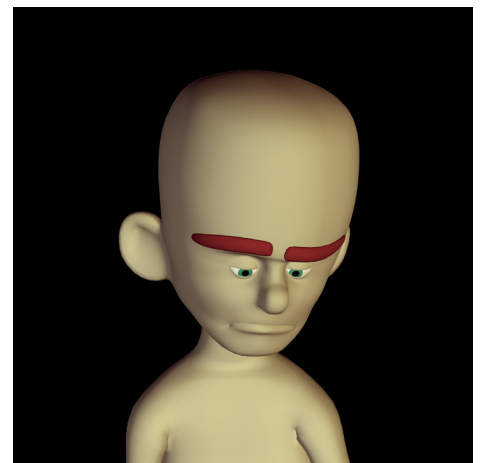
This was an animation exercise mainly, but as animators we are always trained to put weight into characters. In this case a puppet suspended from strings has a completely different feel and then to add to the mix, we had to make it dance like a puppet could never do ... However with many hours of testing the balance between puppet and dancer we ended up with something quite successful. Aside from the animation, the attention to detail on the model and lighting helped tie the character into the environment

with a decent level of realism. It also helped that when the live action environment was shot, there was a replica model of Brains on set. We made sure that we got as much reference footage as possible so when it came to recreating it in 3D, we had something to perfectly match to.

JEFF PRATT – ANIMATION

First of all thanks for taking the time to talk to 3DCreative magazine, Jeff. The Escape website mentions that you have one of the "coolest" CVs around, but before talking about your current position can you tell us what prompted your move from engineering at NASA to computer animation and why after a period at Pixar you decided to teach?

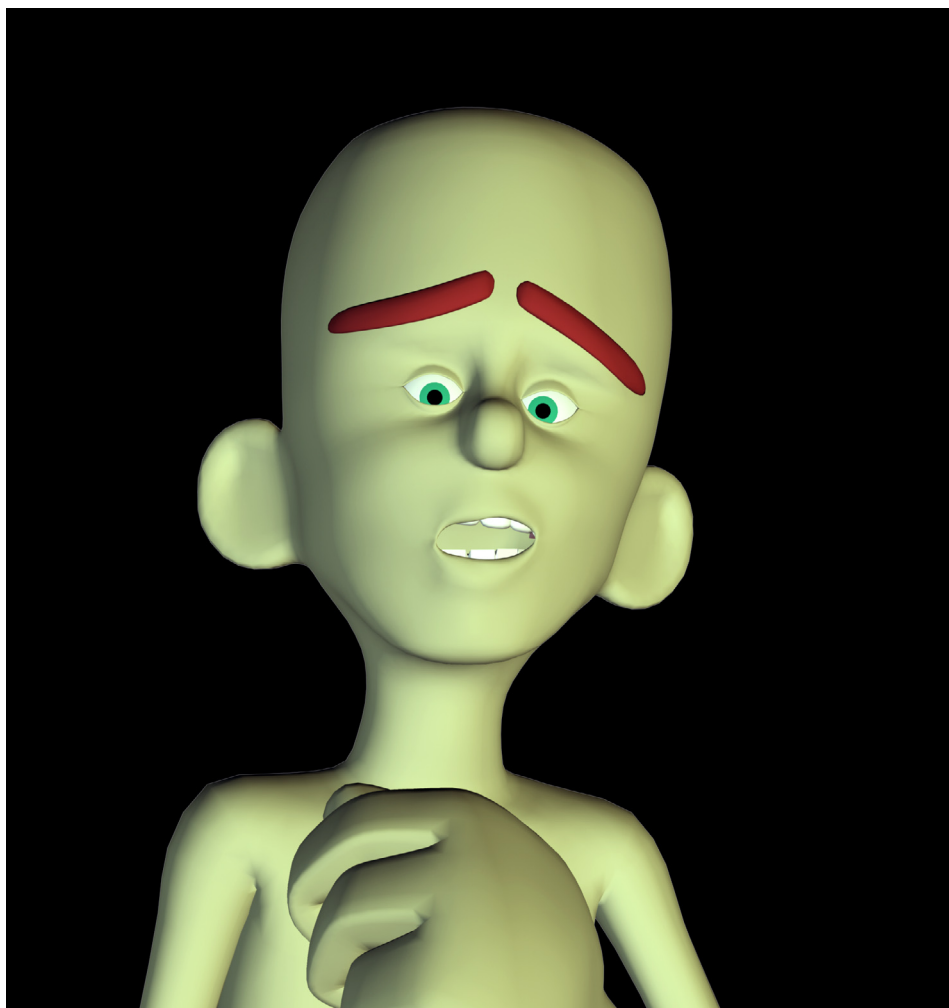
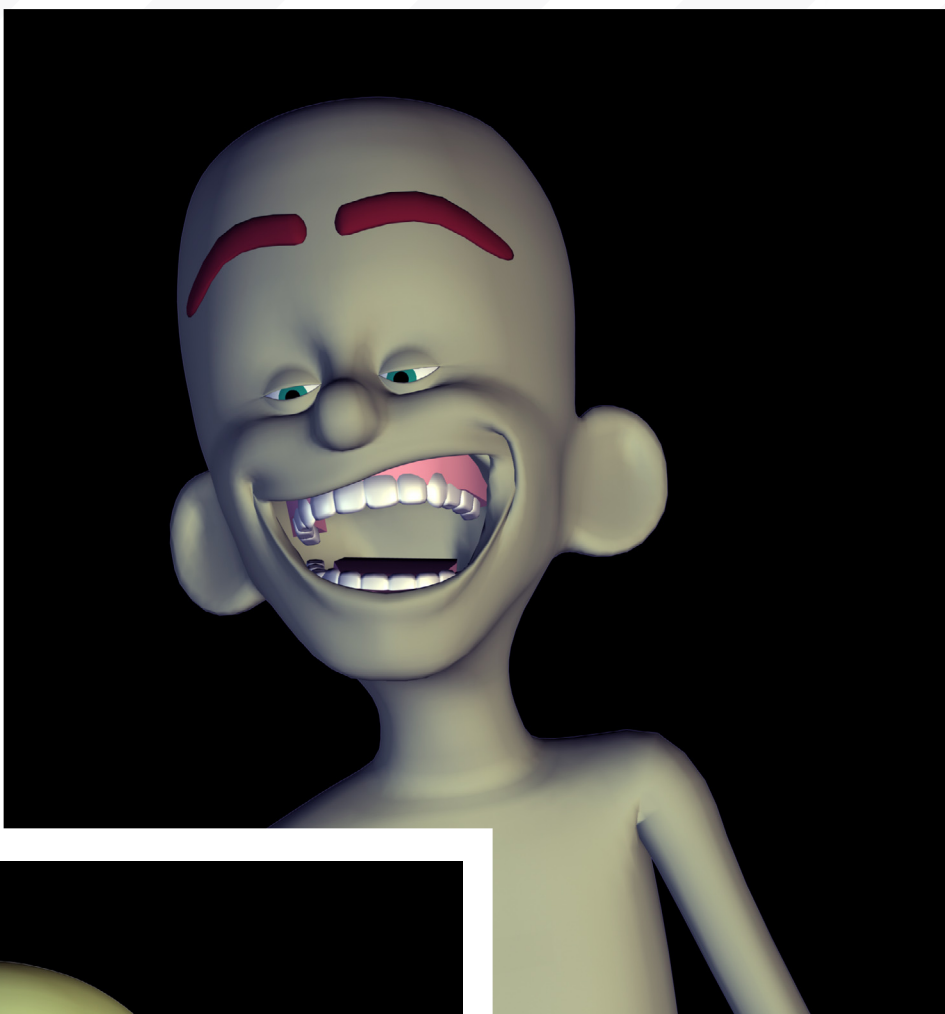
Although NASA is an amazing organisation, it has the rigid structure and heavy regulations you would expect from a government organisation. After eight years there, I realised I needed more creative freedom in order to be stimulated and passionate about my job.



Pixar was a welcome and exciting change – and I was there for nearly ten years – but I knew I wanted to teach ever since I was in art school. I thought I would give it a try and found I really enjoyed it more than production work.

I can imagine why having an expansive career can benefit someone who takes up teaching, but what is it about the job that always attracted you and why London and Escape?

It's the enthusiasm, excitement and energy of the students that really excites me. It makes me look forward to coming into work every day. I came to London because my partner was transferred here and it felt like an amazing opportunity to experience London. Escape was an easy choice. They are a vibrant company with a great forward-thinking outlook- all of the tutors have a wealth of experience and a unique understanding of what is required in the CG industry.



What benefits do you feel a studio such as yours offer students compared to a university course in a similar field?

The courses at Escape are condensed and to-the-point. We teach mostly the “ins” and “outs” of using the software, as well as the fundamental knowledge that you need when trying to get a job in the industry. The pursuit of a university degree takes much longer, costs more and has to cover many more subjects that don't necessarily apply to the industry.

How do you feel software development has helped animators since your days on *Toy Story*?

Software has definitely improved in the last 14 years. Besides becoming faster and more powerful, it is also far more user-friendly which has allowed very creative people (who, before, wouldn't touch a computer) to contribute to and greatly advance the quality of projects that are out there today.



Do you believe that more “user friendly” software has made the role of animating easier, or has simply made it more accessible to more people?

The improvements in animation software has only made the tools better. It's taken out some of the drudgery and made animation accessible to more people, which has in turn helped to elevate the overall level of animation. You no longer have to be an amazing draftsman in order to be able to animate. People with outstanding acting and storytelling abilities are now able to participate, which ends up improving all animation by raising the bar in those areas.

From your teaching experiences over the years, what would you say are the elements that make a successful animator and what do you believe are the key attributes that Escape Studios can offer an ambitious novice?

The elements that make up a successful animator are – first and foremost – passion for the art, but also acting, storytelling, the art of observation, composition, drawing skills and a general love of film.

With regard to acting and storytelling, what is your opinion of films that attempt to replicate real people and emotions in a purely CG manner? Do you feel this is a valid exercise or something that should be the reserve of real actors?

If you are talking about motion capture or performance capture as it's sometimes referred to, it's a medium in its own right and definitely has its place. The look and feel of it is as different from key frame character animation as computer animation is to traditional hand drawn animation or stop motion animation. Each of them has its place. Motion capture is becoming better and better and I'm sure will continue to improve and be more widely used in the future, but I don't think it will ever replace live actors or key frame computer animation.

If there is anyone out there interested in enrolling on a course at Escape, but is unsure about the training and cost, what would you say to them?

It's simple; all of our courses have been developed to make you successful, whether you're in the classroom or studying online. The

classroom courses are quite intense and get you from A to B in six weeks. The online Maya Core course offers a more affordable and flexible version of our classroom course; you can study at your own pace, in your own time, from wherever you are in the world. Escape Studios has a wealth of expertise in the form of its tutors and staff. Having worked in the industry for over 15 years I know what an invaluable advantage it is for someone to show you how complexities are overcome in an easy-to-learn way. Lots of students come to us straight out of university because they don't have the required skills to get into the industry and we offer something that most universities here in the UK don't.

ESCAPE STUDIOS

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THE GALLERY

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Eugenio Garcia

Viki Yeo

Federico Scarbini

Linwen

Serkan Gürgür

Andrew Hickinbottom

Xin Xin



YOUNG GIRL

Viki Yeo

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TRIXIE

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Interview with Andrew Hickinbottom coming in the March 2009 Issue!



DANCING GIRL

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SAY CHEESE!!

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EXULA

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ZENOTH, THE ALIEN FROM JUPITER

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GO FOR SPEED

Linwen

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A VENICE NIGHT

Serkan Gürgür

serkan.gurgur@gmail.com

DOCTOR'S OFFICE

Eugenio Garcia

Image created for: <http://www.detectivestripes.com>

artecn@gmail.com



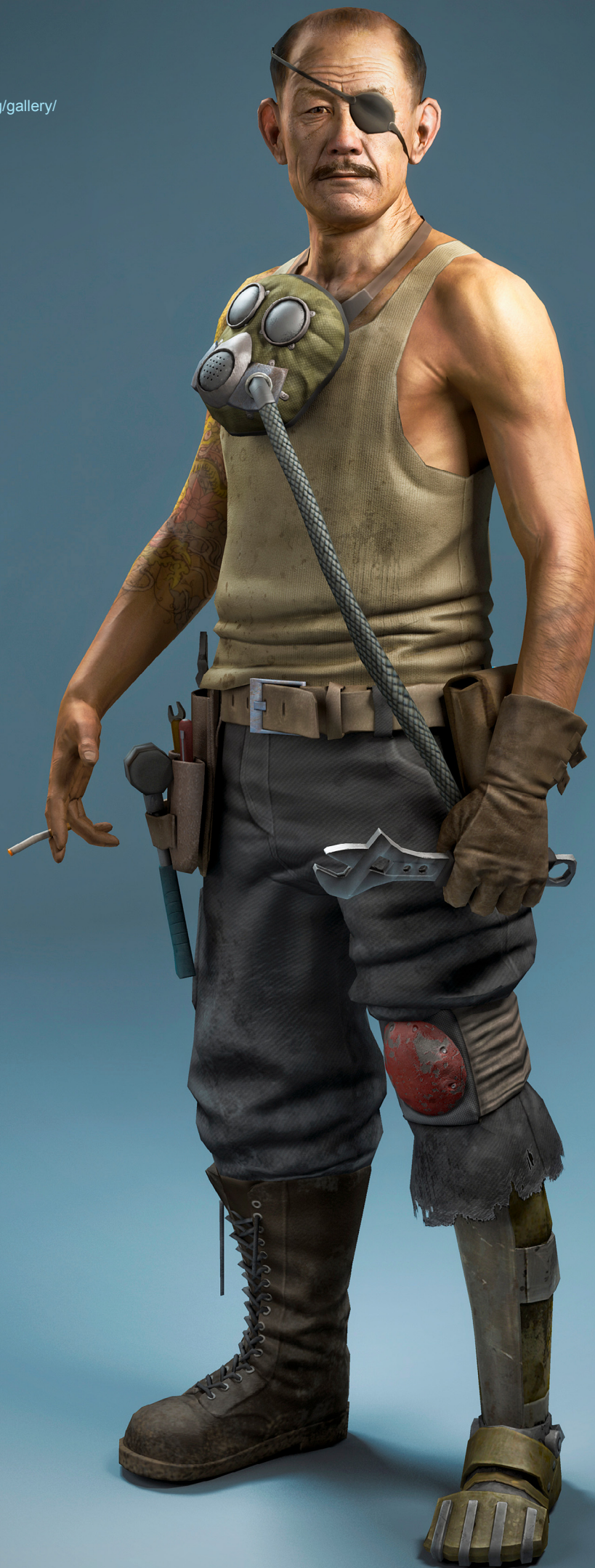
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MECHANIC

Guillaume Molle

<http://guillom.cgsociety.org/gallery/>

guillaumemo35@yahoo.fr





Gothic Church

Interior Creation

This series will provide an overview of the principal techniques used to create a gothic interior based upon a concept painting along with a tutorial on the process of sculpting a gargoyle character in ZBrush. Key methods covering modelling, texturing, lighting and rendering will be outlined over the course of the series and culminate in a chapter on post production and how to composite numerous render passes into a final image.

3DSMAX

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CINEMA4D

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LIGHTWAVE

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MAYA

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MODO

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This Month :

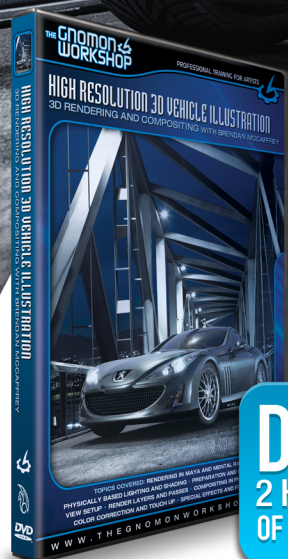
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VEGETATION CREATURE

Welcome to the brand new Speed Sculpting section of 3DCreative magazine. Each month we will give two talented ZBrush sculptors a brief and a base mesh from which they are to interpret and speedily sculpt a model within a suggested time. Here we will show the stages of creation of their "speed sculpts" in the form of mini tutorials. You will often find free movies to accompany these tutorials, and we hope that this new series will be successful and thrive for many months to come!

This month our two skilled speed sculptors are **Rafael Grassetti** and **Magdalena Dadela**, who are tackling the brief:
Vegetation Creature

If you'd like to follow along with these tutorials, we have provided the same free base mesh for you that we also gave to these two artists for their own speed sculpts. Download your own base mesh from the **Free Resources** logo below and get sculpting! Enjoy!



SPEED SCULPTING



RAFAEL GRASSETTI

CREATED IN:

ZBrush

In this project I wanted to have more freedom with the creation than in the other projects I usually do. So I started by doing some basic research around the theme: "Vegetation Creature". I found a lot of great images, but the things that really interested me were the vegetation bugs I found. So I took a look at the references and the features that got my attention were the hooves, thorns and mouths of the insects, which are spectacular. So even while I wasn't going to fully follow the references I knew that would incorporate some of these elements into the final model. This is something that I usually do when I'm designing a character, - having some elements in mind always helps.

The proposed basemesh for this theme was a bit limited, so I started to play with the proportions as quickly as I could, without thinking about it too much. Using the transpose and move tools, I finally got something that I

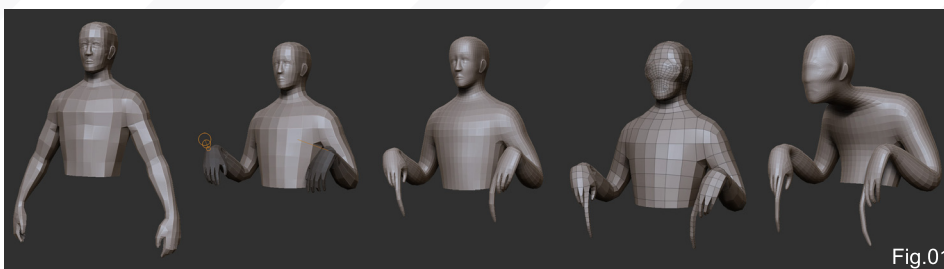


Fig.01

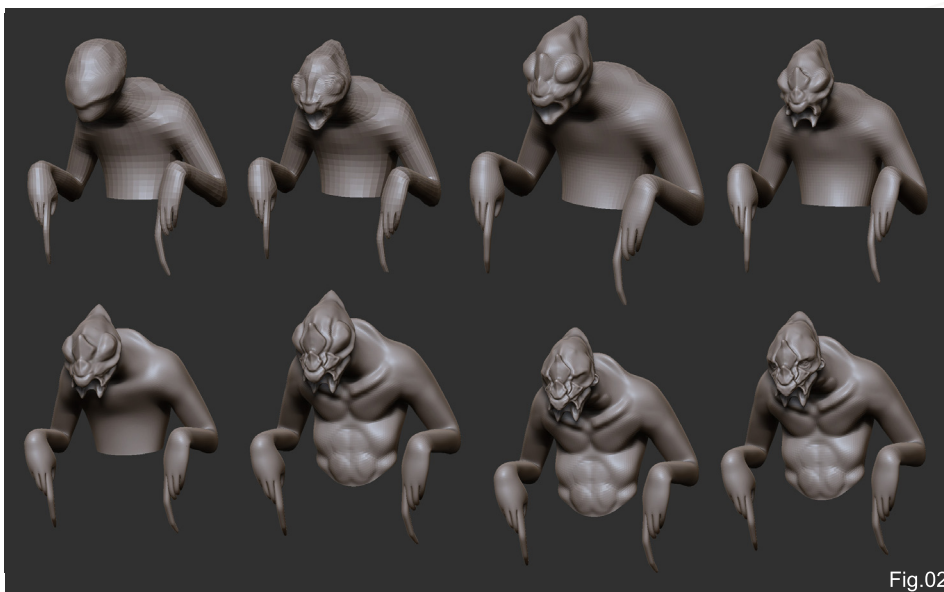


Fig.02

was happy with and then I added some edge loops so that I didn't lose much information in the base when I was adding the final details (Fig.01).

Once I had good proportions, I started to play with some forms, adding fast and intuitive details and forms in the face and body. I think I got a design I wanted to finish the third time I sketched it up, so I wasn't worried about making mistakes. I tried to incorporate as many bug forms as I could, but I was careful to not lose the human form. Our eyes are used to assimilating the things we know and that's why I decided to go with human eyes and arms (Fig.02).

With the polygon count low in the beginning, I focused on gesture and basic form while trying to find the best design sculpt. I then continued subdividing and adding details using the Clay, Standard, Move and Smooth tools (Fig.03).

When I found the final design for the mouth, I exported a low mesh obj and created the teeth in 3ds Max by using and duplicating cylinders. I then imported it back to ZBrush (Fig.04).

By using Isolated Selection (ctrl+shift), I started to add small details to the face (Fig.05). I had



Fig.03



Fig.04

a few pieces that I needed to create because the basemesh wouldn't allow me to – like the antenna – and so I created them using ZSpheres in a separate tool and appended them into the main model. To get both antennas I used the subtool master, duplicated the subtool and used the mirror button (Fig.06).

I started working on the body and then I decided to add a few hooves onto some parts of the torso, like a mantis. So using the ctrl key I created a few masks and with the move and inflate tool I “extruded” a few hooves (Fig.07).

Then I just continued to add details to the final mesh, like muscles and veins. I used the standard and smooth tools, always with lazymouse on. This helped me to get a nice, clean line. With this model I didn't have much time to work on the smaller details because I still needed to work on the final pose within the time I had left (Fig.08).

With this model I had few subtools, so I used Transpose Master, a ZBrush plug-in. With this tool the software merges all subtools into the lowest level and creates a unique tool that you



Fig.05



Fig.06



Fig.07

can use for posing. When I'd finished posing the model by using masks and the Rotate and Move tools, I just brought it back to the subtools and I had everything separated with their subdivisions restored (Fig.09).

For the final presentation I set the screen resolution to 3000 and made it half size – this helped a lot to clean the anti-aliasing. Then I created a render with one simple light and exported it as a .tif image (Fig.10).

I hope you enjoyed my latest model; as it was a speed model, I didn't have much time at the end to change any things that I didn't like about it. But I think that's one of the best way modellers have to study.

Overall I spent 3 hours and 30 minutes working on the model, from the initial basemesh. Happy ZBrushing!

RAFAEL GRASSETTI

For more from this artist visit:

<http://grassetti.cgsociety.org>

Or contact:

rafagrassetti@gmail.com



Fig.08



Fig.09



Fig.10

MAGDALENA DADELA

CREATED IN:

ZBrush

The first thought that came to my head after hearing the brief was a dryad. I looked at some pictures of beautiful women and old trees but after a while found the idea too cliché and quite uninspiring. While looking at some images of strange and rare plants, I thought of a parasite-like creature instead – an alien that would first grow inside a human body and then slowly take over until only the skin from the human's face was left, kept as a sort of cloaking device and perhaps a trophy. I found the idea a bit disturbing and generally intriguing enough to build upon.

Obviously four hours is not quite long enough to make a very detailed creature and certainly not enough to create an entire body.

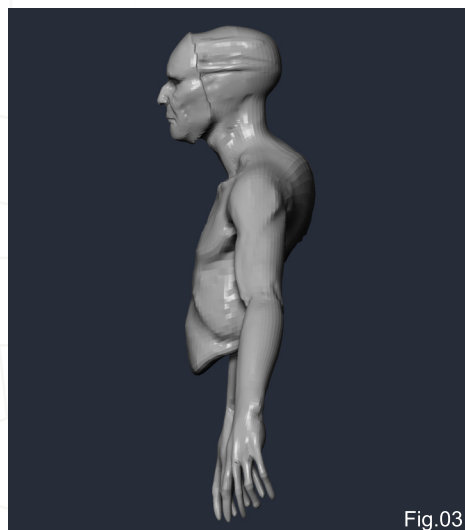


Fig.01

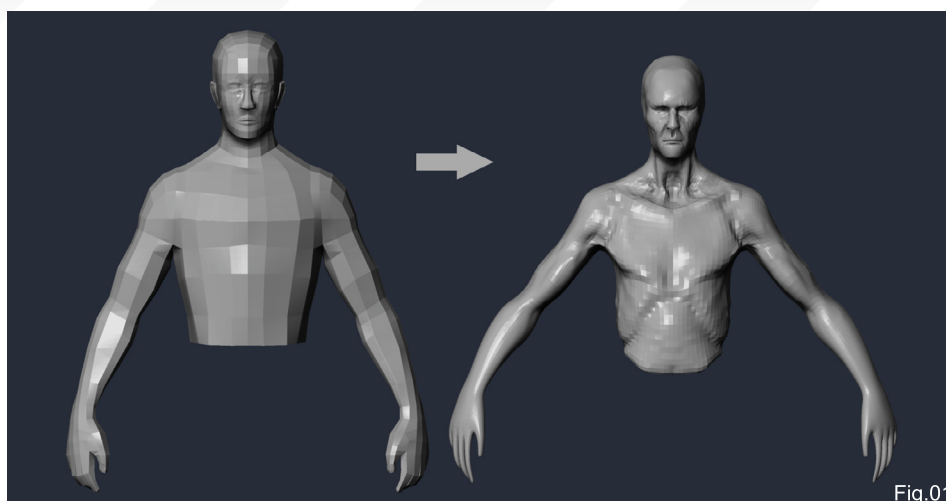
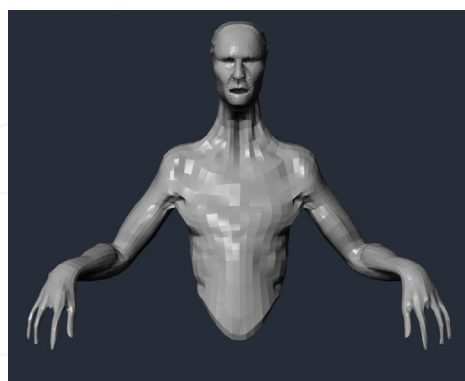


Fig.02



Fig.03

With the brief I was given a simple human torso base mesh, so I decided to use that and enhance it slightly with some of ZBrush's own features like the ZSpheres and simple geometry. I started by quickly establishing the main proportions (**Fig.01**).

I also elongated the hands by using the transpose tool in the move mode (hotkey W) and a topology mask.

Since the base mesh was really low resolution, I subdivided it once.

I wanted a humanoid shape and since the face was the only really human feature in my concept (a dead face), I completely got rid of the ears from the original base mesh, by smoothing them out.

After the subdivision I added a bit more muscle definition – following human anatomy (references are very important here, even when working on an imaginary creature, since it has to be believable and we all know what a human looks like) (**Fig.02**).

At this early stage of sculpting my main tool is usually the move brush. It's easy to quickly change the proportions and stretch or squeeze the mesh.

Twenty-five minutes into the process, I quickly made a mask selection around the face, inverted the mask and used the transpose tool

(hotkey E) to scale the face up a little to create a clear border between the human face and the rest of the parasite (**Fig.03**).

I then decided that although I liked the humanoid look, the enlarged head made the rest of the body too small and not at all intimidating. I quickly elongated the arms and posed them – again using the transpose tool, this time with a rotate function (hotkey R) – and got rid of one of the fingers to make the hands more alien like. I also decided to make the fingers long and narrow. Finally I opened the mouth to make the face look as if it was in pain (**Fig.04**).

Now it was time to add some elements I'd envisioned before, using the ZSpheres. To make the size match my character I simply appended a ZSphere from the tool palette onto my creature (**Fig.05**), used the E tool to scale it down and then positioned it where the head was. I used the transparency mode and quickly drew some branches that would pierce the head and the skin of the face and continue towards the back of the creature. To make sure the geometry was right I used the preview button to toggle between the ZSpheres and the adaptive skin (**Fig.06**).

I added some plant-like branches growing out of the mouth as well and then, about one hour,



Fig.05



Fig.06



Fig.07



Fig.08

forty-five minutes into the sculpting process, I added another ZSphere in the abdomen area to add more interest and variety to the character (**Fig.07**).

After that I started detailing the body. Since there was a lot of work ahead of me and only two hours left, I mostly resorted to the clay tubes tool and a lazy mouse. This allowed me to build up detail fairly quickly and also make it feel like fibre, a very plant like feature. Here's what the character looked like after two and a half hours of fun: **Fig.08**.

I continued the process by toggling often between the clay tubes and the standard brush, with one of the alphas from the alpha palette to add more variety into the body and the face. A few more wrinkles around the mouth helped enhance the feeling of the stretched skin. I also used a couple of custom alphas to add some pores into the model (**Fig.09**).

Finally I decided to use the last half hour to change the pose of the hands a bit and twist the torso, as well as to add some colour to the model, using the colorize option in ZBrush.

I like to use the toy plastic material to paint the models, since it has controllable specularity and it is white, which shows off the colours well. I usually change the specular curve (in the material tab) a bit so that the highlight is not too strong.

I also appended one sphere onto the tool and scaled it to fit the eye socket. I then used the clone button to duplicate it and the mirror option under the deformation tab to position the copy where the second eye socket was. Finally I appended that copy to the model as well. That way my character now had two eyes (**Fig.10**).

For the final render I used several different matcaps and the painted colour (**Fig.11**) and combined them in Photoshop, adding some blur and some colour correction (**Fig.12**).

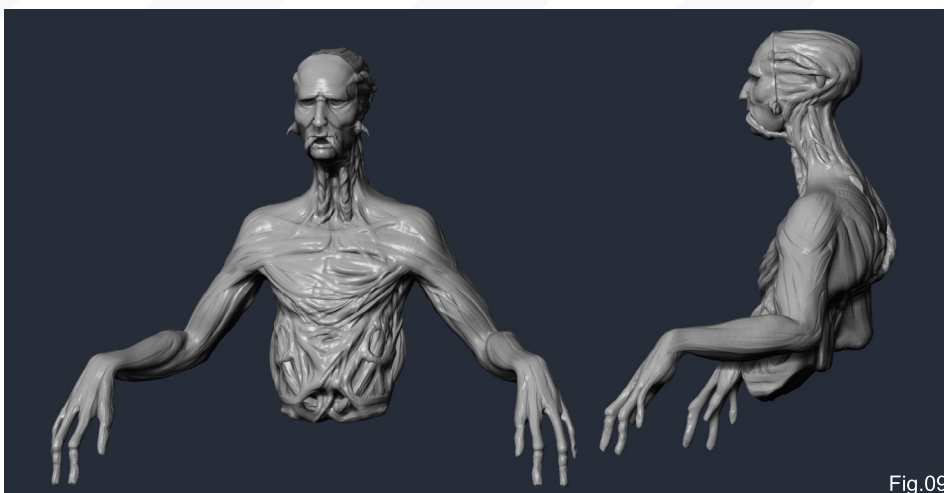


Fig.09

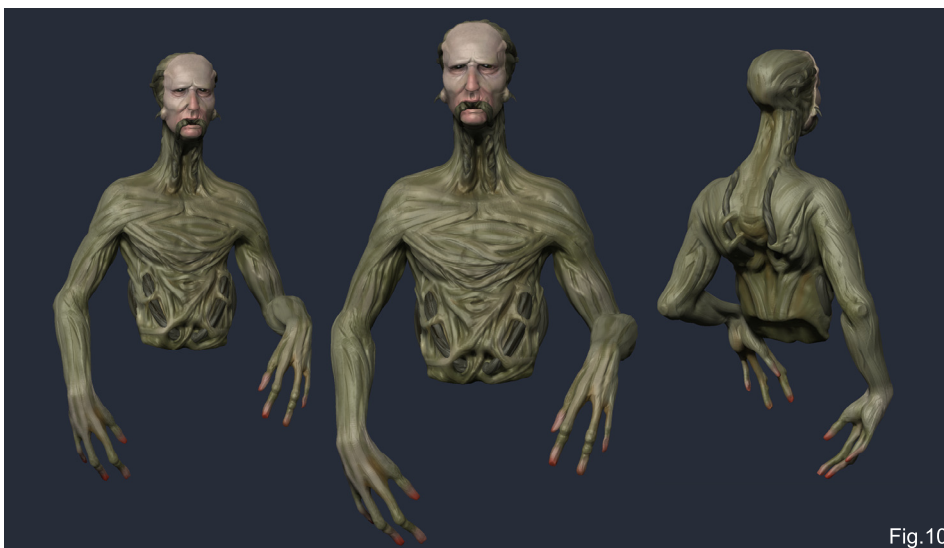


Fig.10

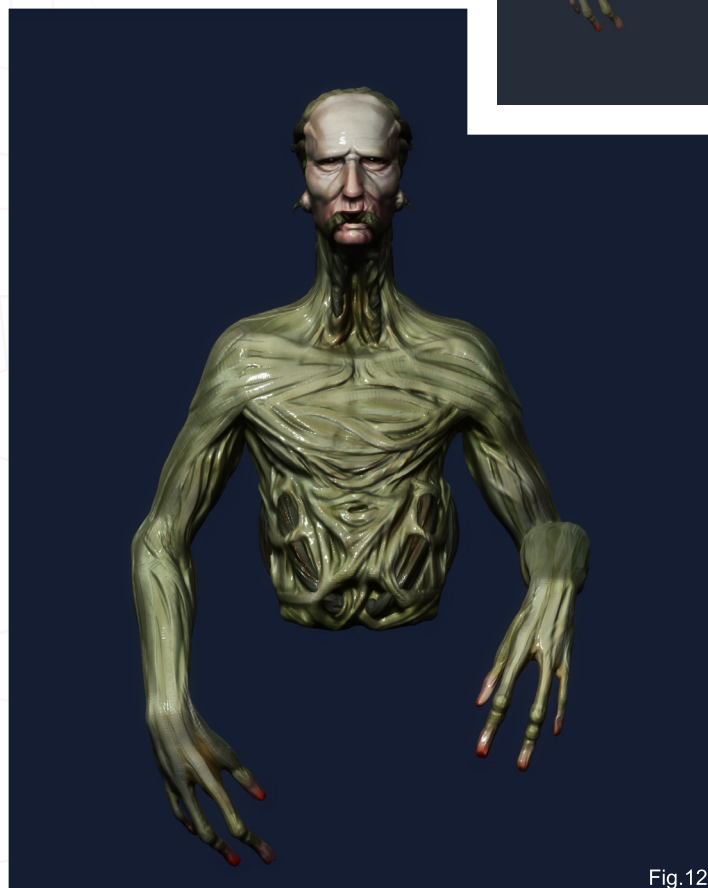


Fig.12

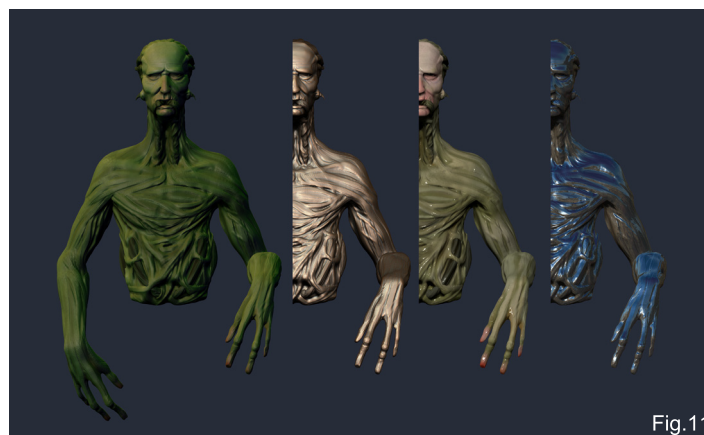


Fig.11

I hope you enjoy the final result and you'll be inspired to try your hand at some speed sculpting too.

MAGDALENA DADELA

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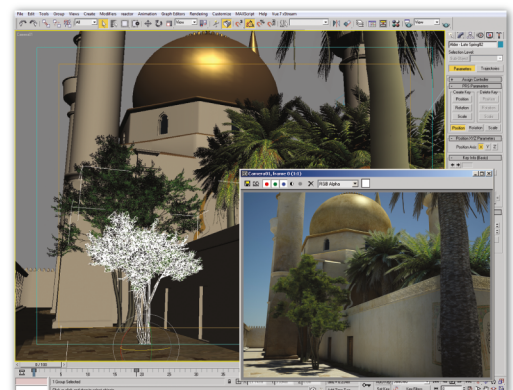
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I'M SPECIFICALLY
CHOOSING NOT
TO WORK WITH
SYMMETRY, SO I'M
MODELING EACH
SIDE OF HIS FACE
INDIVIDUALLY."

Zombie Character Creation ZBrush

Welcome to the new ZBrush Character Creation tutorial series. Each month, Rafael Ghencev will take us step-by-step through the transformation of a clean, generic head base mesh into a character type of 3DCreative's choice! We thought that topics such as a wrinkled, gaunt, old man, a steroid-pumped guy with popping veins, an extreme tattooed and pierced dude, and even some real extreme cases of personality disorders in the form of a vampire and a werewolf, would be fantastic for detailed sculpting work! On top of all these, Rafael thought it would be cool to sculpt and texture Frankenstein, and we agreed, so we've even thrown that one into the line- up for you as well. So stay-tuned over the next nine months to see Rafael at work and to learn a thing or two about detailed sculpting in ZBrush for characters. This fifth tutorial covers the development of a zombie.

Enjoy!



Download your free
base mesh here!

SEPTEMBER 2008
Part 1: Old / Gaunt

OCTOBER 2008
Part 2: Obese

NOVEMBER 2008
Part 3: Steroid-Pumped Guy

DECEMBER 2008
Part 4: Extreme Piercings & Tattoos

JANUARY 2009
Part 5: Beaten-Up

FEBRUARY 2009
Part 6: Zombie

MARCH 2009
Part 7: Vampire

APRIL 2009
Part 8: Werewolf

MAY 2009
Part 9: Frankenstein

Zombie

CREATED IN:

ZBrush

NOTE FROM THE EDITOR:

Please note that because this character is much more involved in the sculpting process this month, Rafael will just be discussing the sculpting work and this chapter will not detail any texturing in ZBrush. Please check out our previous chapters by Rafael Ghencev for information on how to texture your models in ZBrush if you feel at the end of this chapter you'd like to continue and texture your model.

CONCEPT

This month I'm back to sculpt a zombie character for you. As usual, before starting any sculpting work, I search for references on the Internet. After some time researching the subject, I came across a zombie image which inspired me to create the model you see here in this article.

BASIC SHAPE

The first thing I do is extrude the polygons inside his mouth, because I've decided to go for an open mouthed character this time around. To extrude the mouth I open the base mesh in

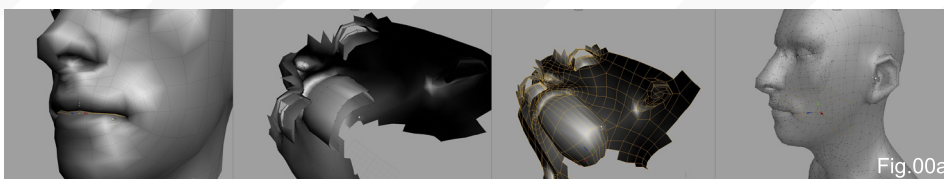


Fig.00a

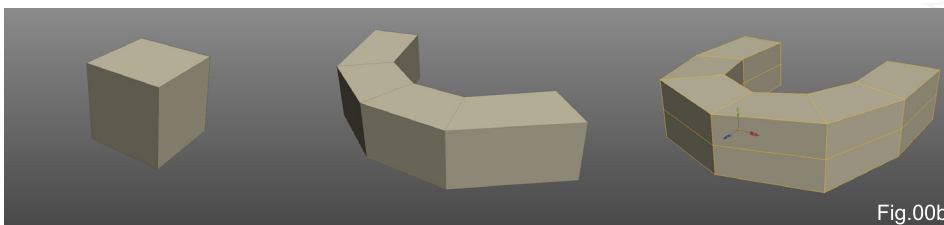


Fig.00b

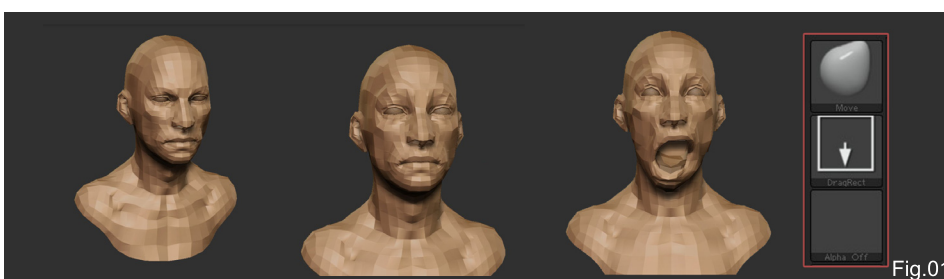


Fig.01

another 3D package (in my case I use Silo for this) and use the Extrude tool in the edges of his mouth (**Fig.00a**). I then export the base mesh back to ZBrush to continue work.

I also create a simple mesh for the teeth and his tongue (**Fig.00b**). To create this I simply created a box in another 3D package and extruded it a few times, pushing the extrusions backwards to create a horseshoe shape. I then exported the base mesh to ZBrush. Using the Move brush, I play around with the model, searching for a good look and shape for my zombie character.

each side of his face individually. To change his expression I use the Transpose function to open up his mouth. With the Move brush I can then make some necessary corrections to the expression (**Fig.01**).

With a good shape established, I choose to add one level of subdivision and continue to develop the basic shape, starting to sculpt in his bone structure and facial muscles with the Standard brush.

He's a very thin character; he's suffered a lot and so his face must show agony. But remember: at this stage we're just working on

For this character I'm specifically choosing not to work with symmetry, so I'm modelling

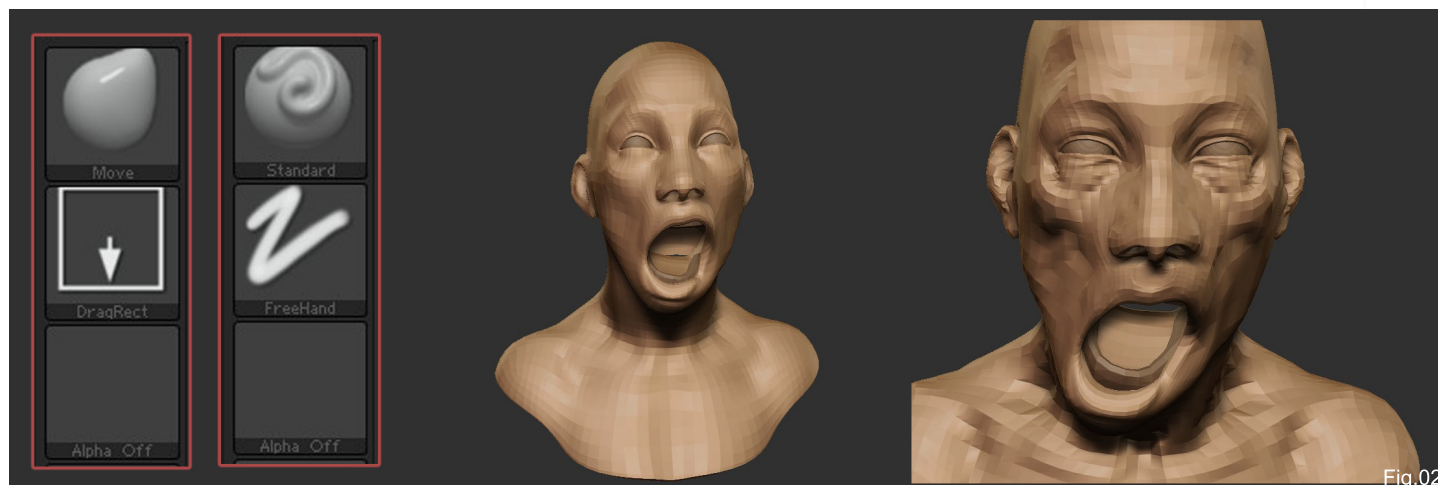


Fig.02

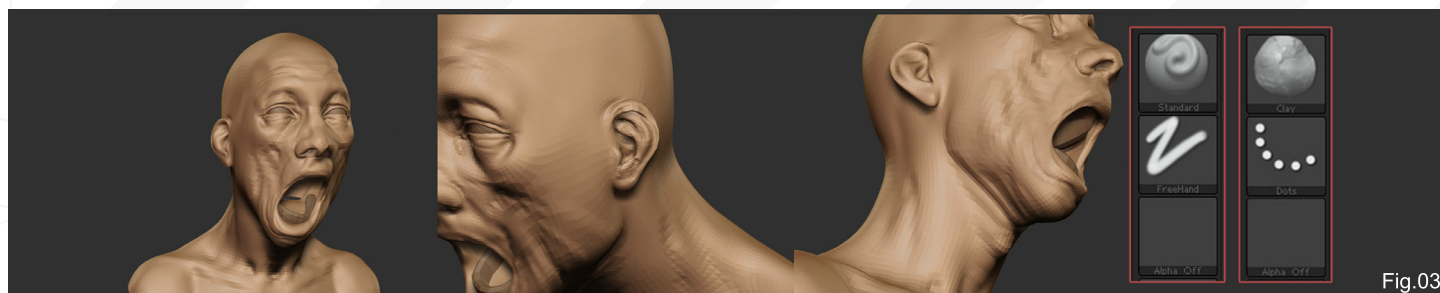


Fig.03

the basic shape only – details are not necessary yet. The objective, as always, is to establish good shape and structure (Fig.02).

REFINING THE SHAPE & ADDING MAJOR FACIAL LINES

Once I'm happy with the shape I've defined, I select the Clay brush and start refining the shape of his bones and muscles. He's very thin, so it's really important here to put all the muscles in the right places. For this, it is of course wise to work with references.

With the Standard brush I sculpt some skin folds below his chin; it's the expression on his face that brings about this kind of facial deformation. I also add some large wrinkles/creases to his forehead to increase the expression in his face (Fig.03).

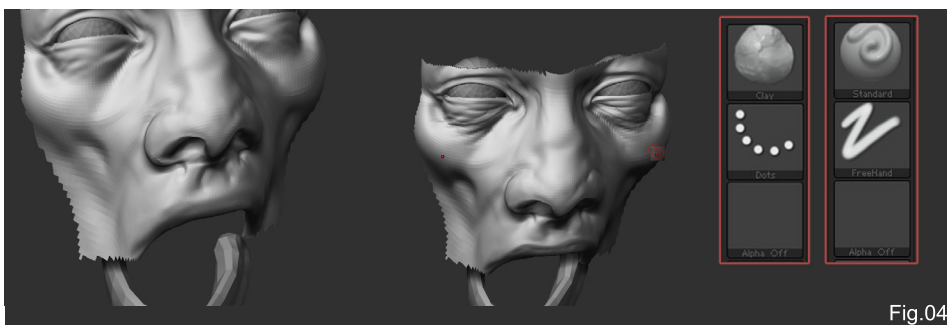


Fig.04



Fig.05



Fig.06

Now it's time to refine the individual shapes, like the nose and eyes, and add further wrinkles and facial lines. Here I use the Clay brush to improve the nose shape, later selecting the Standard brush to create wrinkles around his eyes (Fig.04).

Here it's very important to refine the shape of the body as well, to keep things in good balance. So, using the Clay brush, I sculpt the breastbone and the top of his rib cage. On his back I go for adding some distinction to his spine (Fig.05).

MUSCLES, ROTTING SKIN, TEETH & TONGUE

Now it's time to detail the muscles in his face; for this I use the Clay brush to add volume and the Standard brush with Alpha 28 to add some

wrinkles and cavities. I decide to go on and improve his suffering further by rotting part of his skin. For this I make a selection by pressing Ctrl and painting a mask; using the Clay brush I sculpt muscles that appear through the rotting flesh (**Fig.06**).

For the teeth I select the Standard brush and start to draw the teeth one by one. With the same brush, but now with Alpha 38, I start to add some cavities and refine the divisions between each tooth (**Fig.07**).

For the tongue I use the Transpose function to add good movement to it, and then select the Standard brush to detail the shape of the tongue. To give it some texture I select the Clay Tubes brush and modify the strokes to Color Spray. To finish up the tongue, I use the Standard brush with Alpha 38 to add some fine wrinkles (**Fig.08**).

FINAL DETAILS

Using the Standard brush with Alpha 38, I refine the skin around the muscles. I do the same for the wrinkles inside his mouth, and on his neck and brow. It's always really important to work with references, especially



Fig.07



Fig.08



Fig.09

for this kind of detailing, because wrinkles have to flow in the right direction for each part of the face in order to achieve believable results.

I select the Clay brush and start to refine the transition between the skin and the muscles in his face, taking care to aim for a natural look to his rotten skin (**Fig.09**). Selecting the Clay brush again, I sculpt some skin imperfections and add extra detail to his face. Using the Clay brush with Spray and Alpha 38, I create the little pores and holes in his face and neck; changing the brush to Standard I then add extra wrinkles around his eyes and neck (**Fig.10**).

Here is the finished model – I hope you like it (**Fig.11**). I'll be back again with the Werewolf chapter (April Issue #044). See you then!



Fig.10

NOTE FROM THE EDITOR:

Rafael is taking a break from the series next month, so we're welcoming Joseph Harford to the ZBrush Character Creation Series instead and he's going to create a vampire character for us. Rafael will be back in April for the creation of a werewolf, and to complete the series in May 2009, Rafael Grassetti will sculpt and texture Frankenstein's Monster for us. So stay tuned!

FREE MOVIES:

Rafael has provided us with 13 movies this month that track the process of his zombie character creation. Please be aware of the large file size when downloading the movies that accompany this chapter – simply click on the “Free Movies” icon, download and enjoy!

RAFAEL GHENCEV

For more from this artist visit:

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"I APPROACHED THE
PROJECT BY STARTING
OUT WITH A 2D SKETCH;
I BELIEVE THIS CAN BURN
THE FORMS AND DETAILS
OF AN OBJECT INTO
YOUR MEMORY, WHICH
HELPS ME IMMENSELY
WHEN I COME TO THE
SCULPTING STAGES"

Making of Joseph Harford

Joseph Harford shares how he created a digital
version of Giovanni Lorenzo Bernini's famous
"Constanza Bonarelli" bust

Constanza

Bonarelli Bust



Fig01

Making of Constanza Bonarelli Bust

CREATED IN:

3d Studio Max, ZBrush and Photoshop

Giovanni Lorenzo Bernini is by far my favourite sculptor from history. I love his subjects' expressions and masterful forms. His bust of Constanza Bonarelli is one of his smaller pieces that I greatly admire, and for that reason I chose to create it digitally.



Fig02a

I gathered as much reference material as I could, with Flickr.com being a great source for this job – people uploading their images from visiting museums is a great way to get strange and often un-photographed angles of a piece.

I approached the project by starting out with a 2D sketch; I believe this can burn the forms and details of an object into your memory, which helps me immensely when I come to the sculpting stages. Using just a simple pencil brush in Photoshop, I sketched out and painted the bust, checking proportions and measuring details as I went along (Fig.01).

In 3d Studio Max, I created a simple base mesh using edit polys and Max's poly modelling tools – nothing too complex, just clean and with enough loops and detail to sculpt all areas of the model. I exported the base and took that into ZBrush where the digital sculpting began.

I don't like to use any image planes or background images, as the camera distortion often leads you to wonder what the proportions should actually look. To me, they encourage tracing and end up not giving as many benefits as sculpting from reference photos. I let my mind spend as much time as needed analysing



Fig02b

the forms and structure of the bust, placing strokes, pushing and pulling geometry where I felt it was necessary.

The process was mostly completed using the Move and Clay brushes in ZBrush. The Clay brush gives you the freedom to pull the surface of the model in small layers, just as in real life where we'd add small layers of clay to build up the surface. This is my favourite and most used addition to the latest release of ZBrush. Another benefit of this brush is that it's quite non-destructive: it paints off pinches and smoothes out areas as you go.

With the model at a good stage in terms of both shape and proportion, I then moved onto making sure the likeness was there in the expression.

I looked at the details of the bust and tried to replicate them in my model. I used the Standard brush a lot to create small holes and to chip the sculpture's surface.

Hair in 3D is always a nightmare, and probably the reason for so many bald characters in games and movies! This being a sculpture, however, the hair was considerably easier. I



Fig03a



Fig03b

used a small variety of tools, namely the Rake, Flatten, Clay, Standard and Slash brushes. I masked off the area of the hair and blurred the mask. This meant that any sculpting done on edges of the mask would blend smoothly into the head, just like hair does. Then I attacked the hair with the Rake brush on a high Z-Intensity, and used the Slash brush to add large sections of hair in. Combined, they produced a realistic impression of the bust's hair. It's always important to understand order when sculpting hair; start by creating the underneath and work your way to the outside (Fig.02a & Fig.02b).

With the model complete (Fig.03a & Fig.03b) I tried out various MatCaps to see how the surface reacted to light. It's an important step which helps you to check whether your model is missing any volume in certain areas, or if the holes are not deep enough (Fig.04).

Modifying the preview shadows options can also help with sculpting in the viewport and seeing your model the way it really is. I like to increase the ObjShadow to 100, the length to 17, slope to 1.5, and depth to 0.1. This gives quite harsh lighting conditions and can show depth well (**Fig.05**).

I sourced some marble textures and began stitching them together, creating a seamless and high resolution marble image. I altered the colour and saturation and painted in some of my own cracks and veins. Using Projection Master, I projected this onto the model in all areas, using the plane3d and radial fade options. With the texture in place, all that was left was the lighting. Lighting either makes or breaks a piece, and I wanted two images: something realistic – a camera shot of the bust in a museum, and an artistic photograph.

I set up the ZBrush lights at a top diagonal left angle, with quite deep and dark shadows. I turned off any ambient lights and created a brand new MatCap to simulate the surface of marble. Things I noticed were a soft, sub surface scattering feel to the stone, crevices picking up reflected light at Fresnel angles, rather than shaded with shadow, and that the reflections could be soft or hard depending on the level of polish. I created a sphere in Max and set up these features in a shader. I then rendered the ball at full screen square with the sphere touching the edges of the image. The image was then used to create a new MatCap in ZBrush.

Using ZBrush DoubleShade material, I loaded Toy Plastic into the first channel, setting no diffuse or ambient contribution – only specular. Then in the second I loaded the MatCap I'd created. This gave a nice dual-layered look. I only really grazed the surface of the power of MatCaps in this image; they are extremely powerful and there are numerous effects that can be achieved by combining them together.



Fig04



Fig05



Fig07

Rendering some simple objects in Max, I heavily blurred them in Photoshop and took them into the ZBrush scene as a background image. I rendered the character on top with depth cue and fog, and the final image was complete. The artistic photograph was rendered in the same way, using a pure black background and black fog (**Fig.06 & Fig.07**).

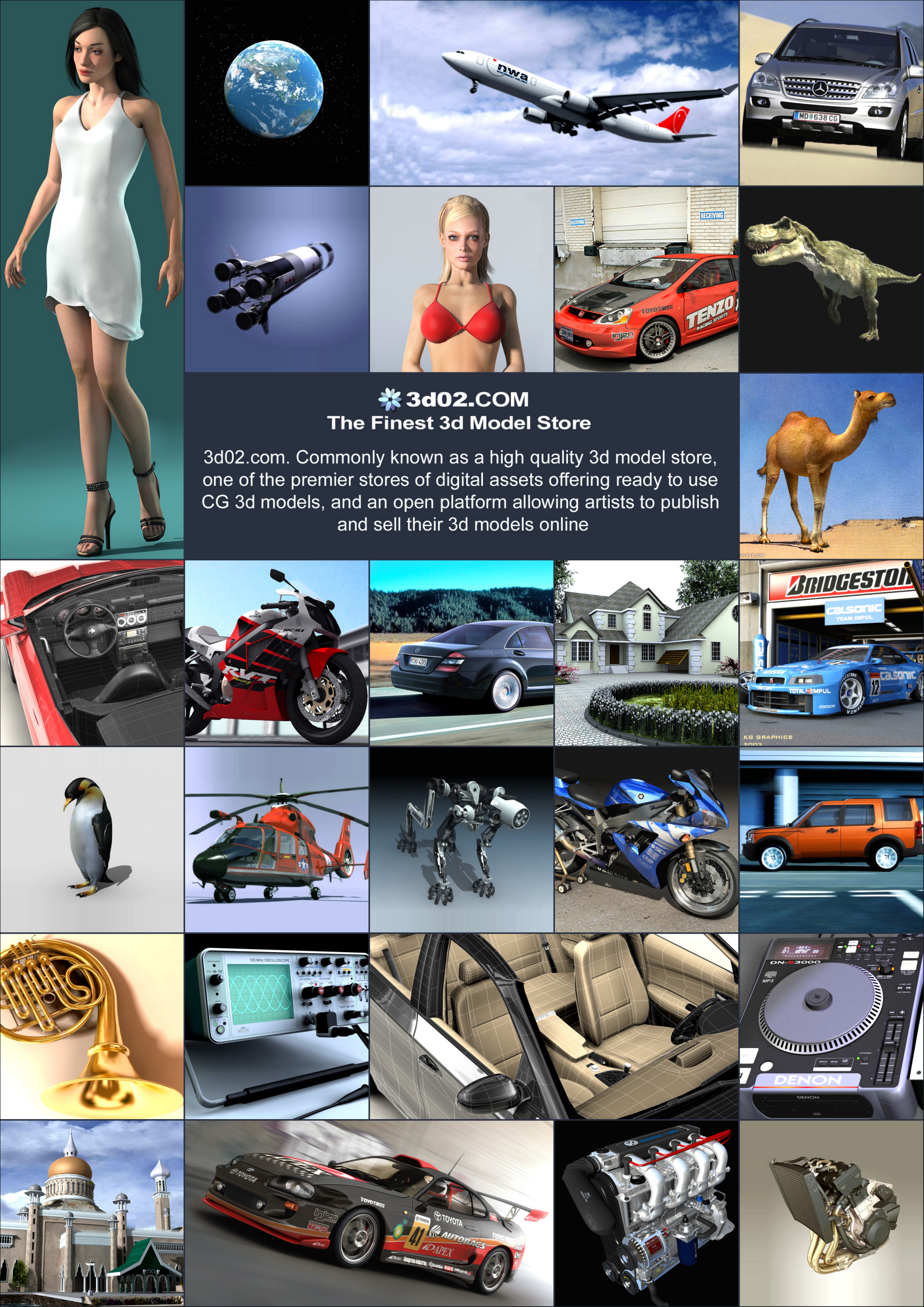
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Fig06



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"MY FIRST ATTEMPTS
WERE KIND OF STRANGE.
IT WASN'T EASY FOR
ME TO MAKE A BUNNY
LOOK SEXY, FUNNY AND
CHARMING ALL AT THE
SAME TIME, AND IN-
STEAD I WAS GETTING
A RATHER DISTURBING
"THING"."



Bunny

making of by carlos ortega

Carlos Ortega shares
how he created his
character "Bunny",
using Maya and
Photoshop

© Carlos Ortega

Bunny

making of

CREATED IN:

Maya and Photoshop

INTRODUCTION

There weren't any sketches or concepts done in the process of creating this character, I simply wanted to create a cute, cartoonish bunny character. The only reference I had in mind at the time was of Bugs Bunny's girlfriend from the movie, *Space Jam*, but I didn't use any actual visual references in order to avoid copying that character.

My first attempts were kind of strange. It wasn't easy for me to make a bunny look sexy, funny and charming all at the same time, and instead I was getting a rather disturbing "thing". So I played around with exaggerated proportions and focused more on the character's face to try and achieve an appealing look.

MODELLING

The first step was to block the main proportions of the full body. Starting with a 2x2x2 cube, I performed a series of face extrusions, tweaking

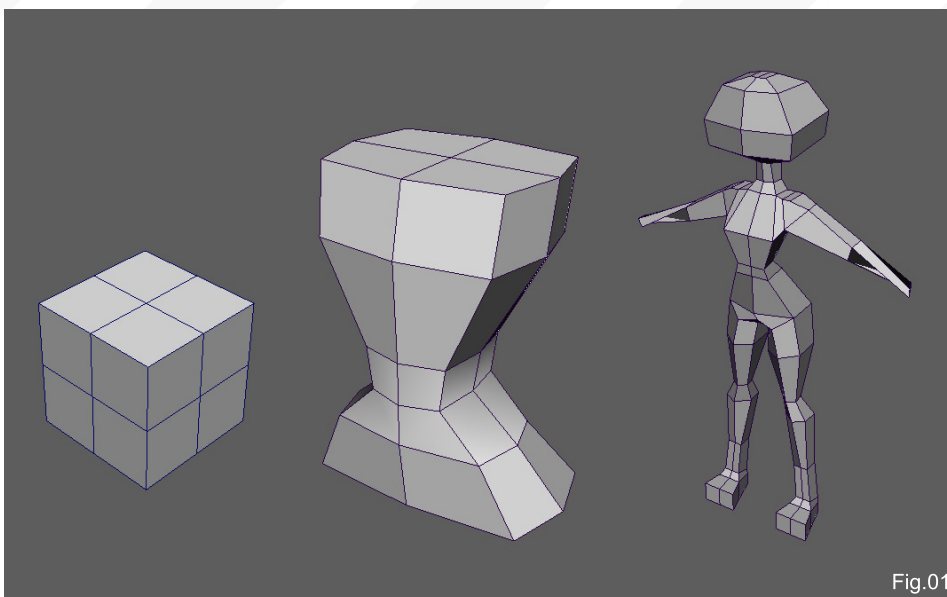


Fig.01

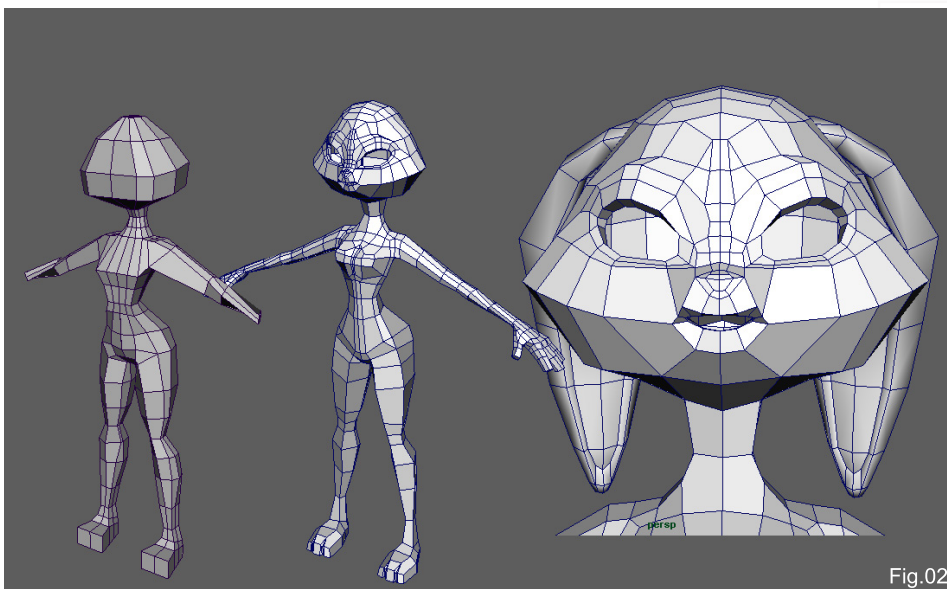


Fig.02

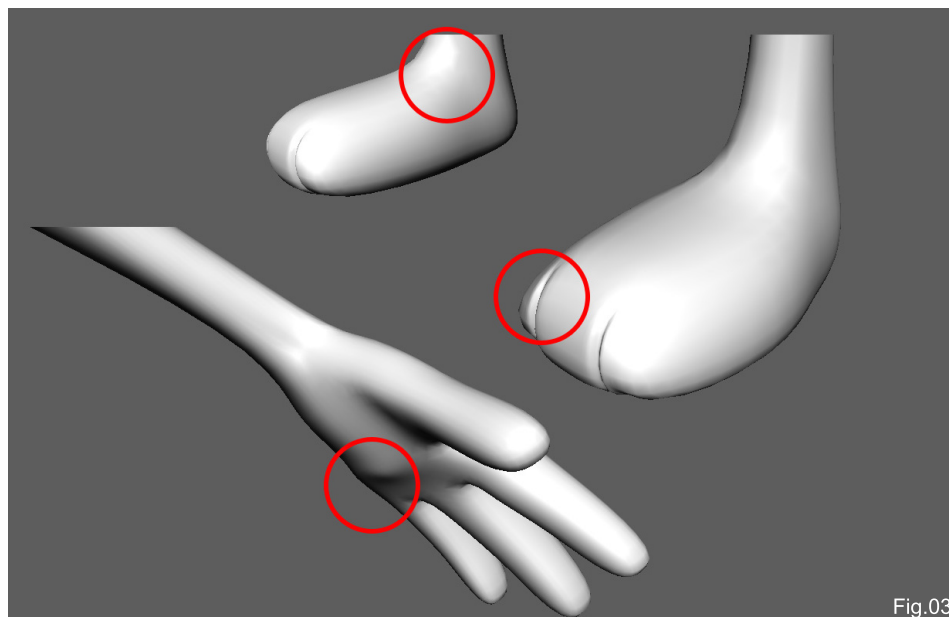


Fig.03

vertices to define the main front silhouette and profile (Fig.01). Once I was happy with it, I started adding edge loops, cutting faces randomly and adding detail where needed. At this point it looked sort of creepy and there were a lot of 3- and 5-sided faces (Fig.02). Due to my lack of care back then, and since its main purpose was for a still image, I left all the faces that way, but when I smoothed all the problems showed themselves (Fig.03).

About two long years later, I opened my old files to finish them once and for all (most 3D artists will know what I'm talking about). Then I started to clean most of the polygon flow, deleting faces, adding new ones, and optimizing the

topology to create the clothes from this mesh by selecting the matching faces and duplicating them from the model. This is a well known method I use to dress most of the cartoon characters I create (**Fig.04 & Fig.05**).

The hair was made by drawing NURBS curves and extruding planes along them; the eyes are NURBS spheres converted to polys (**Fig.06**).

UVS & TEXTURING

I unwrapped the model, trying to keep the seams away from the view. I unwrapped the legs, arms, hands, feet, head, torso and ears

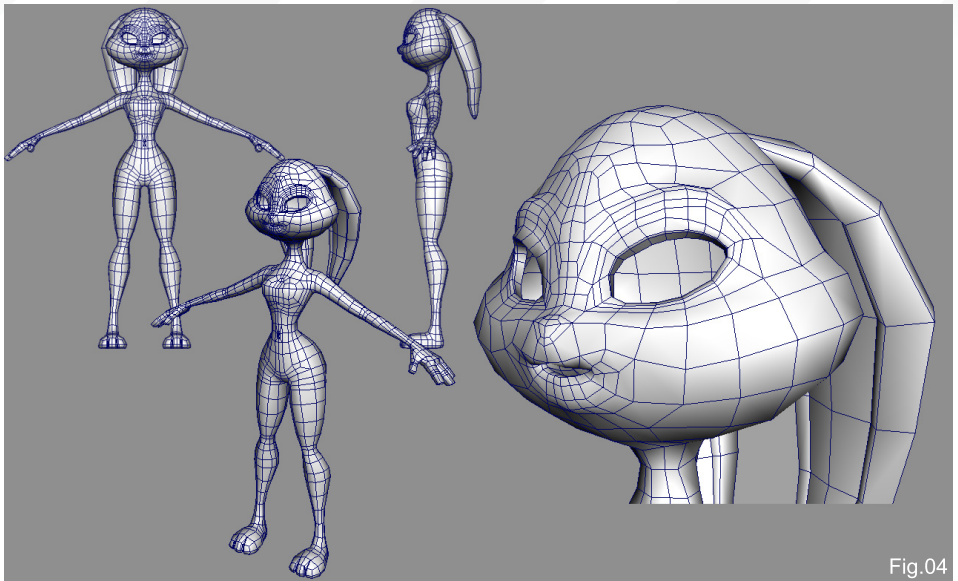


Fig.04

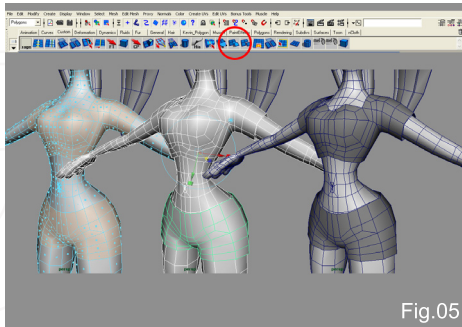


Fig.05

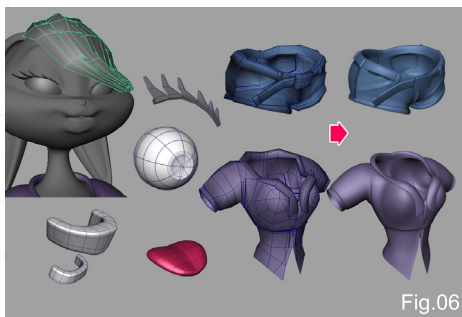


Fig.06

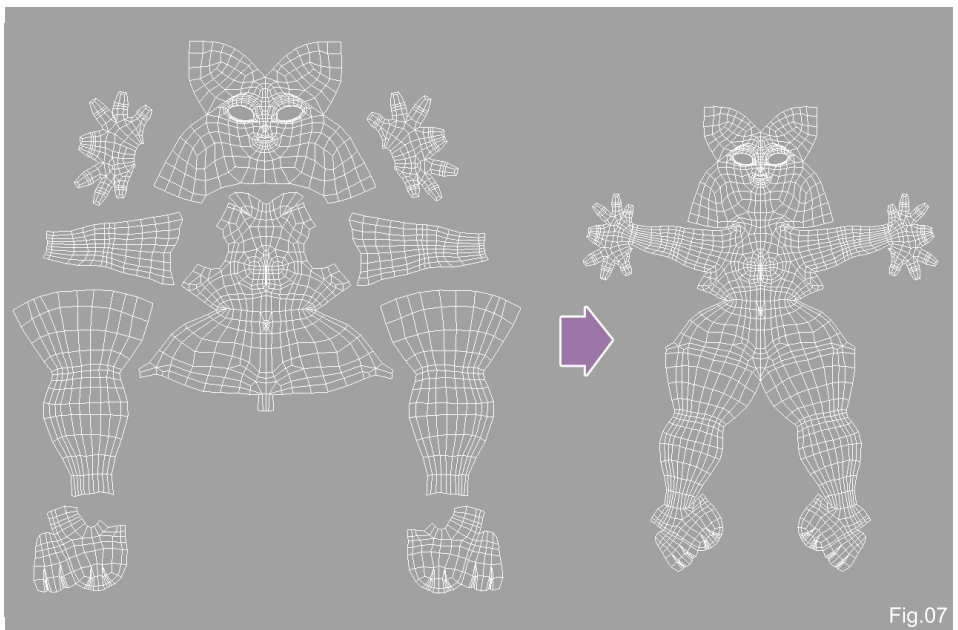


Fig.07

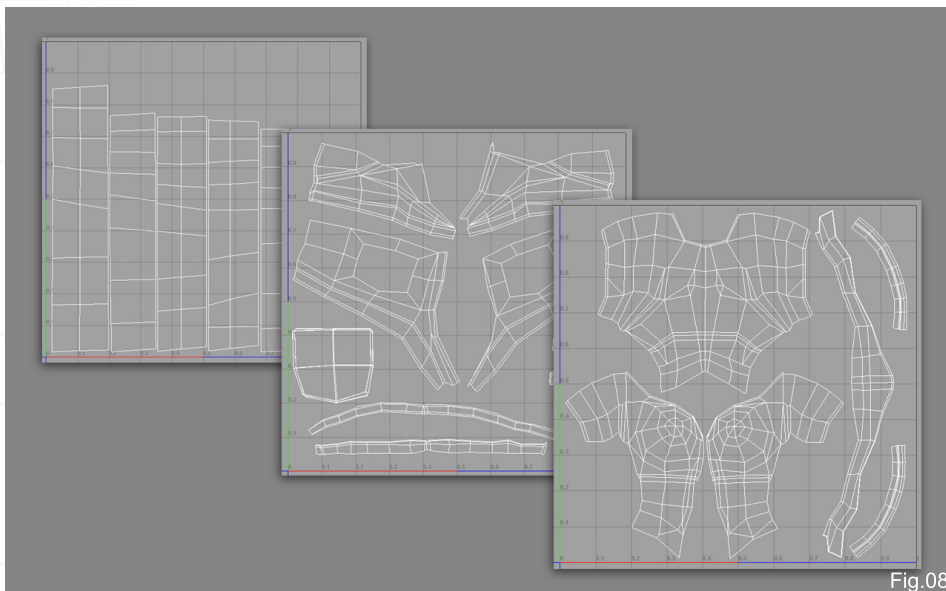


Fig.08

separately, and once all of them were unfolded I sewed all the parts together, except for the ears. The result was a nicely unfolded mesh in one single UV shell (**Fig.07**). The clothes and other body parts, such as eyes, teeth and tongue, were also unfolded in the same way (**Fig.08**).

I chose a blue-purple-pink colour scheme for the final render, so those were the colours I used for the maps. The body texture was hand painted – nothing fancy; the clothes were textured using textures from Total Textures: Volume 1 and details were painted using some custom brushes. I baked an occlusion pass for all of the textures and used them to colorize the final

maps, and to add darker areas at the same time (Fig.09 & Fig.10). The hair was hand painted in Photoshop.

The materials were very simple (with a very messy shader network): the clothes used a blinn material with a very low specular value and no reflection, and the body used a MISSS_fast_simple (Fig.11). The scatter layers were painted using the body texture as a reference and colorized to a reddish-pink colour.

RIGGING & POSING

I used this character, along with another one I had, to learn the basics of character rigging

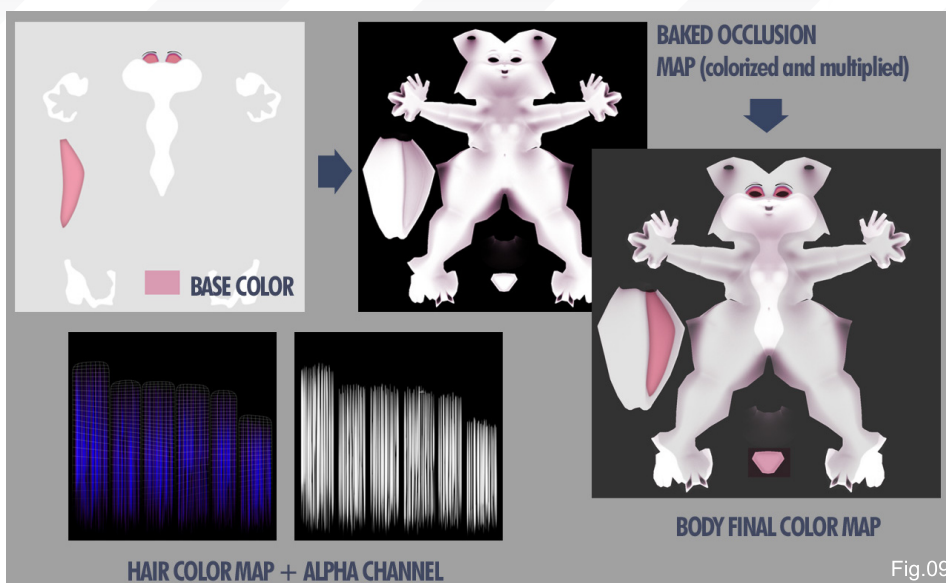


Fig.09

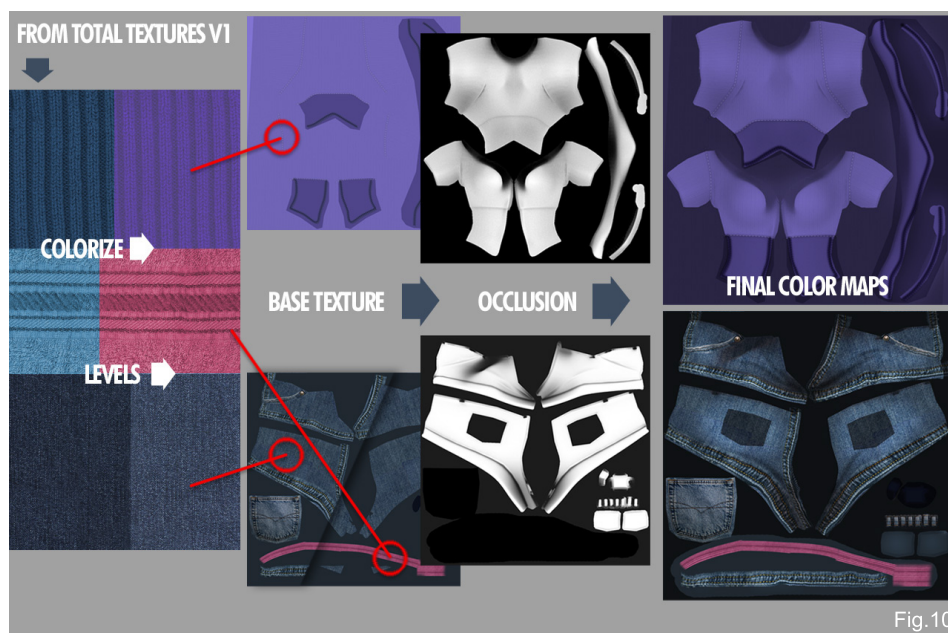


Fig.10

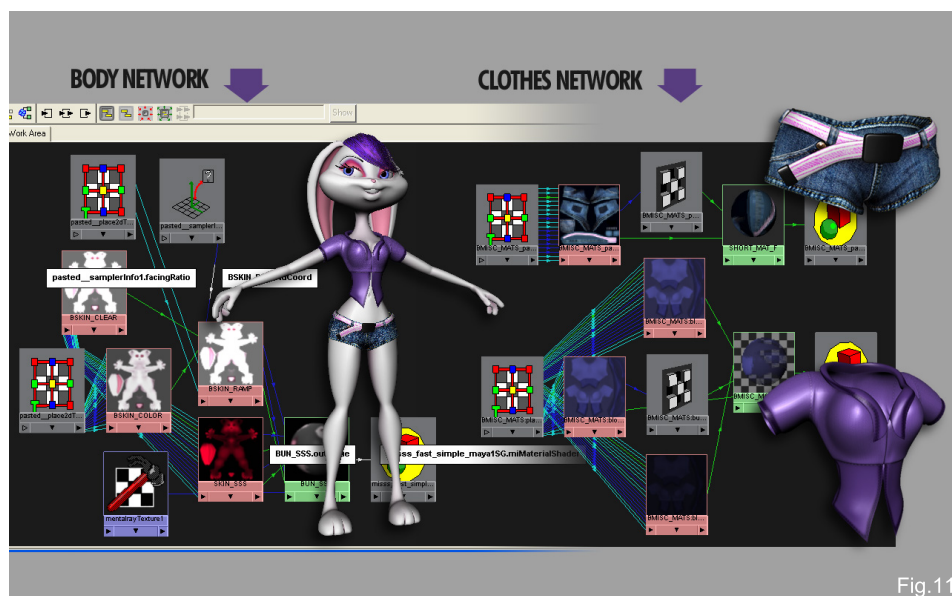


Fig.11

in Maya more than a year ago. It was a long process involving several tutorials and getting help from the Internet. I rigged the two very different characters – a thin, cute bunny and a fat, ugly red devil – with the same system, and both worked very well (Fig.12). The face had just a few blend shapes due the limitation of the face topology, but the result was good enough for my purposes (Fig.13).

LIGHTING & RENDERING

The lighting setup consisted of one area light for the main character, two spotlights – one as a rim light and one for the background – and glowing planes for the reflections in the eyes. The scenario was just a curved plane. The still was rendered in Mental Ray with Final Gather turned on at 3000x4000 pixels. It took about four or five hours to finish. I made several poses, but the rest were rendered at 900x1200 due to time limitations (Fig.14 & Fig.15).

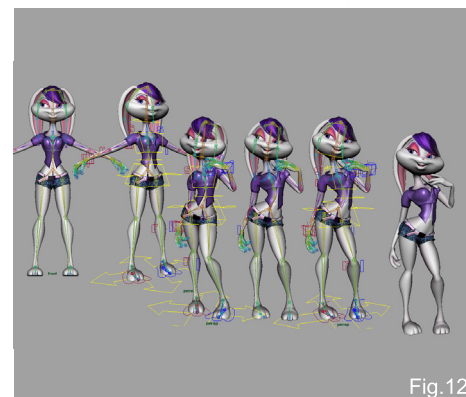


Fig.12



Fig.13

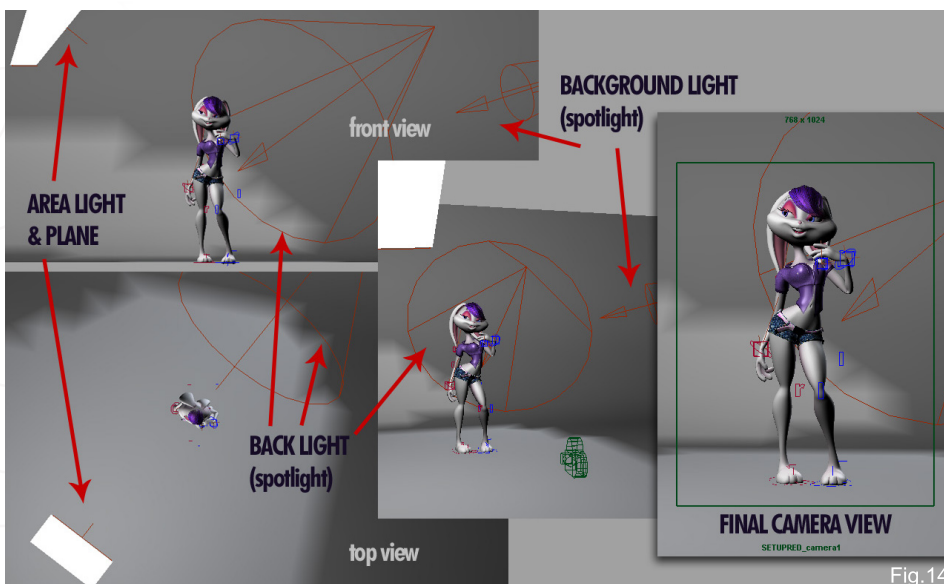


Fig.14

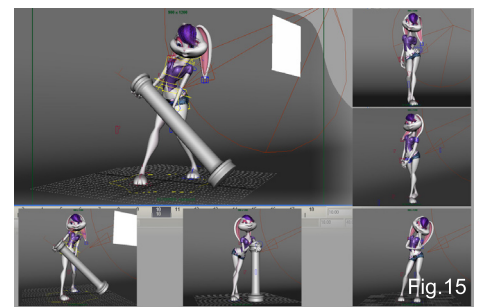


Fig.15

POST-PRODUCTION

I used Photoshop to add a warmer mood to the final image. First I adjusted the tone with a Curves Adjustment Layer and a Photo Filter and I then adjusted the overall levels slightly, to make the image brighter. I added a slight lens-blur using a depth pass from Maya, which made no real difference to the final render, but a big one to the high-res image. The final touch was one greyscale stock image over the full composition in two different blending modes, and a low opacity value to give a less clean look to the background (Fig.16). The same method was applied to the other five renders I made (Fig.17 & Fig.18).

CONCLUSION

This is one of many of my dearest works; there are many things I learned from this single image, and of course a lot more things to come from it, I'm sure. The work done on this image involved lots of things I still use in my daily

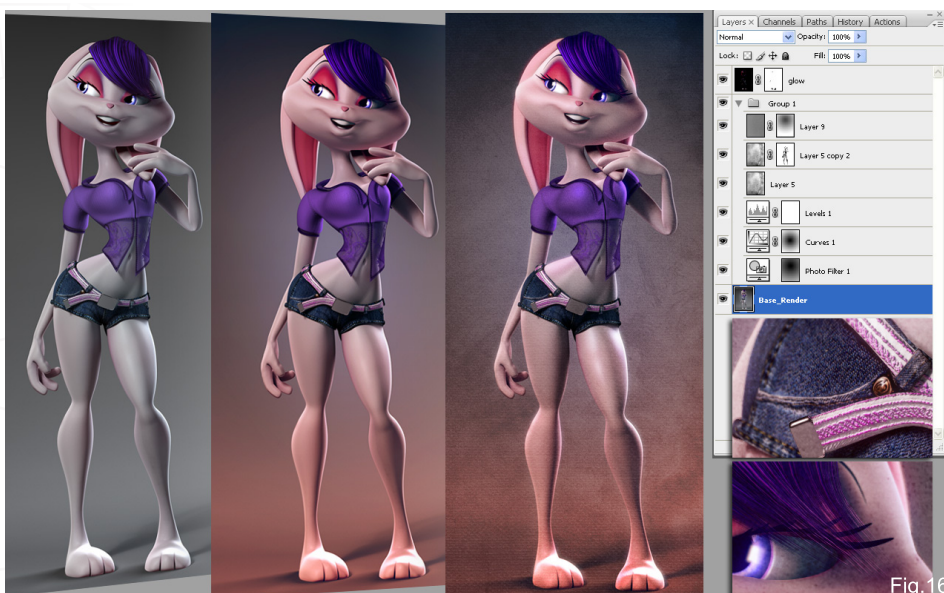


Fig.16

works, and the entire process was a lot of fun too (except, of course, when waiting for the renders!).

CARLOS ORTEGA

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<http://www.zigrafus.com>

Or contact:

strogg_tank@hotmail.com

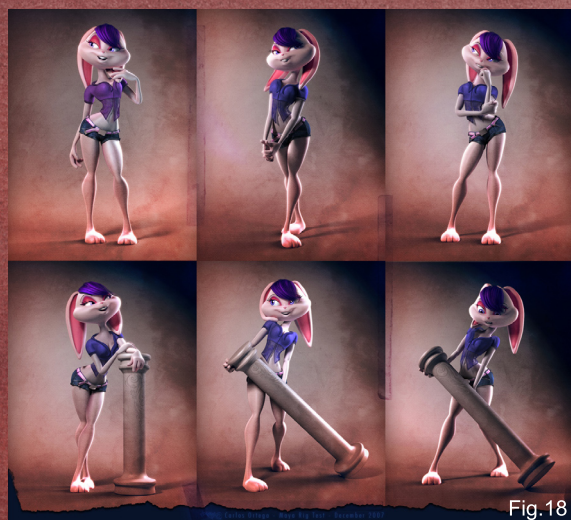


Fig.18



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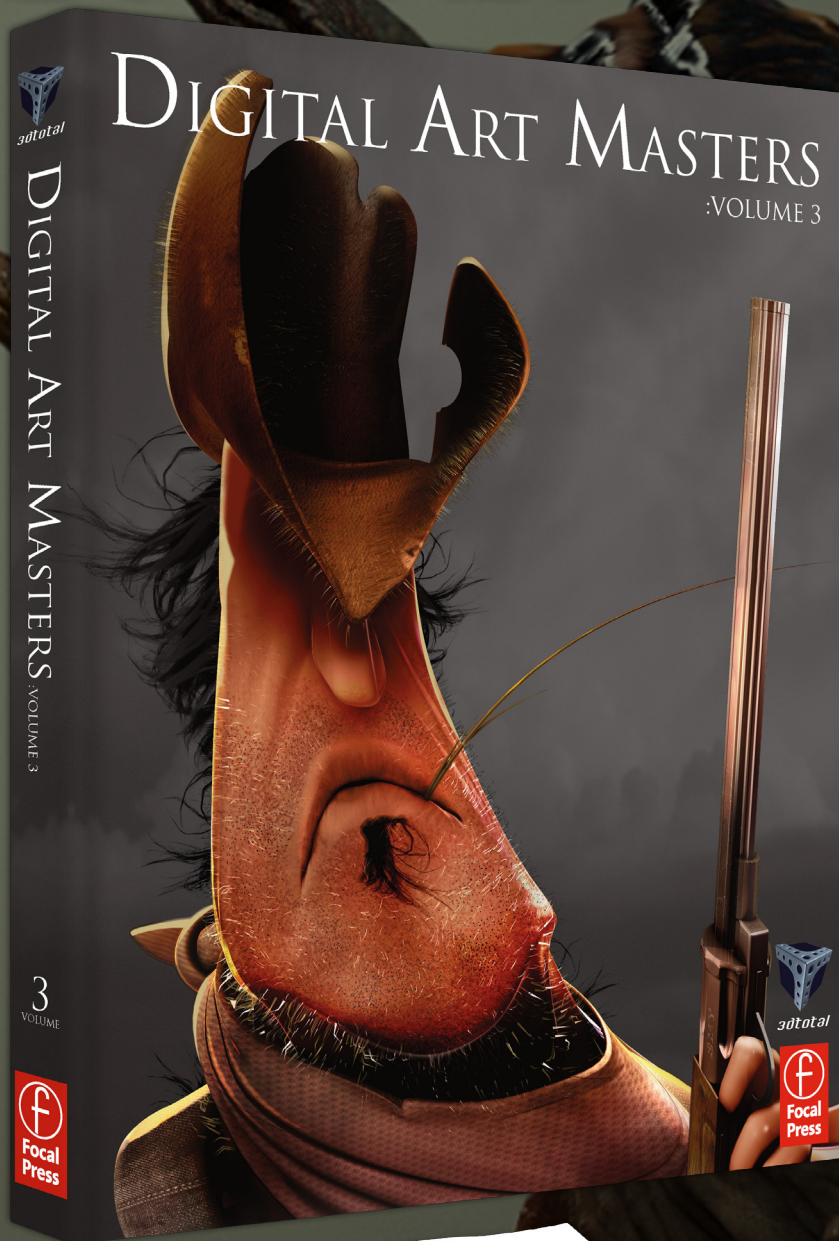
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With the release of 3DTotal's new book, *Digital Art Masters: Volume 3*, we have some exclusive chapters for you...

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This month we feature:

**"Creature
Concept"**
by Mathieu Aerni



The following shots of the "Creature Concept" book pages are featured here in full-resolution and can be read by zooming in...



CREATURE CONCEPT

BY MATHIEU AERNI



3D CONCEPT

The idea for this creature started when I was looking for a way to use horns in an unusual way on a gothic-like creature. I came up with the idea of using four backwards-pointing slim horns. It was very clear in my mind that I didn't want a brute type creature with a bodybuilder's physique; instead I wanted him to be lean and light. Despite its unfriendly looks, I wanted my creature to come across as wise and old. I started to work with those ideas in my mind, and through the entire concept phase I used ZBrush as a "3D sketching tool" rather than as pure production software, as I do at work. To me, this project was more about exploring ideas in 3D than creating a specific illustration. The idea was to develop and design a creature directly in 3D that looked believable, with strong character and personality. As with 2D concepts, I believe presentation and rendering are very important to deliver the right feeling for your artwork, so I gave a lot of attention to rendering and lighting after my modeling was finished. Over the next pages I would

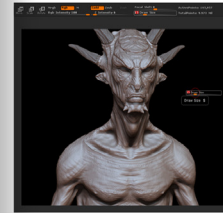
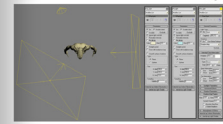


Fig.01 like to go over how I created this creature, starting with the base mesh in 3ds Max, the modeling and texturing stage in ZBrush and the lighting, shading and rendering in 3ds Max.

MODELING

For the modeling, I started with an old bust model that I had done in the past, using the box modeling technique; starting with a primitive, I deformed and extruded it until I achieved what I was looking for (Fig.01). The horns were modeled separately for more flexibility and were made from primitive boxes deformed as an editable poly. Then I imported my bust into ZBrush and started deforming the model using the move tool in Symmetry. At that stage, it was very important for me to keep the mesh at the first level of subdivision until my new shape was pretty much locked. I work with a complete bust even if I plan to do a close-up of the head for a final render, as it helps to get the proportions right. Also, I may use the model in the future in a more completed image that shows more than just the face.



CHARACTERS

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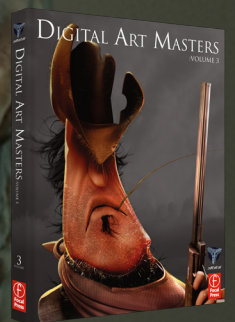
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Once I was happy with my new bust I was ready to work on the details (Fig.02). Note that I separated the head from the bust, which gave me the option of separating them into two different ZTools, in case it became too heavy to handle. I usually never go to a higher subdivision level before I am sure that I have done everything I can to make the one I am working on look nice. This prevents me from having a model full of details with uninteresting shapes, which is so easy to do in software which gives the opportunity to go into deep details – like ZBrush.

My modeling method is pretty simple, using basically only the standard brush and smooth brush. For this piece I tried to keep the few basic inspirational guidelines, which I mentioned at the start, in my mind – I iterated on the details a few times if I considered that my concept looked too cliché, or if it went in a direction that was way too far from my starting idea. A few ideas came from animal pictures, for example the protective scales on the top of this head came from a picture of a crab. I tried to do my best to keep in my mind the things that I have learned through modeling realistic humans to make it believable, such as the muscle masses and the direction of the wrinkles.

LIGHTING

Once I was close to being done with the modeling, I rendered a displacement map in ZBrush, exported the subdivision level 3 and put all those things together in 3ds Max to begin the lighting process.

I used V-Ray as the renderer for this image. My lighting set up was a very basic three point lighting (Fig.03). The key light and the fill light were both V-Ray lights. The first one had a slightly yellowish tint, while the second was

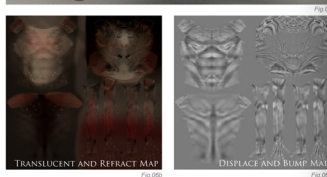


Fig.03 blue. The backlight turned out to be more efficient as a standard 3ds Max spot, instead of a V-Ray light. This light is the one that provides the white rim that gives a little more definition to my model's outline.

I chose not to use much indirect illumination to provide more contrast to my image and to save precious render time. All my render tests were done using a basic neutral gray material so I could set up an interesting lighting very quickly while knowing that the color texture would not change the result significantly (Fig.04). In this case, I also tried it with

a more fleshy material in order to have a more precise idea of how the lighting reacted with colors closer to the direction where I want to go with the textures (Fig.05).

TEXTURING AND MATERIALS

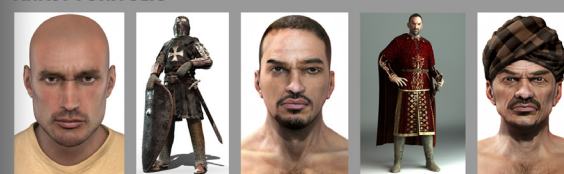
For the texturing process I returned to ZBrush where I did all the texturing, switching from ZBrush to Photoshop using ZapLink. This process is very intuitive and extremely convenient for painting handmade textures, giving you the ability to paint directly on the model with those good old tools from Photoshop, like the Dodge and Burn tools. I started painting the base colors, then added a shade of lighter ones and then added motifs like stripes and dots. I finished with three textures (Fig.06), the diffuse map, the transference map (which is also used as a refraction map) and the displacement map exported from ZBrush (which is the one used as bump map). In Fig.07 you can see what my material looks like. I made several render tests using different cameras and playing with darker backgrounds and more translucency (Fig.08) before definitively choosing the final set up.

CONCLUSION

I had so much fun working on this project. In the past I have worked on a number of projects where I have to put into 3D a precise idea, but working on personal concepts is an extra challenge for me, and is definitely an area where I can get more satisfaction. To me, this project was about pure creativity and the liberty that a relatively new software like ZBrush gave me the extra freedom I needed, and showed me that these programs can turn out to be a very interesting tool for creativity. Of course, there are many improvements that can be made to this creature, and I intend to work on it in the near future while completing its body, posing him and putting him in an interesting context.



ARTIST PORTFOLIO



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CHARACTERS

CHARACTERS

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Gothic Church

Interior Creation

This series will provide an overview of the principal techniques used to create a gothic interior based upon a concept painting along with a tutorial on the process of sculpting a gargoyle character in ZBrush. Key methods covering modelling, texturing, lighting and rendering will be outlined over the course of the series and culminate in a chapter on post production and how to composite numerous render passes into a final image.

The schedule is as follows:

PART 1: This tutorial will outline some of the prominent approaches to building the church interior. We will cover some of the key methods and modifiers responsible for creating the scene and core geometry.

PART 2: Will focus on the creation of the gargoyle which will be mounted on one of the columns. This tutorial will orientate around Zbrush and its powerful sculpting tools and show how a detailed model can evolve from simple ZSpheres.

PART 3: This part will detail the texturing phase of the series and deal with mapping and unwrapping key areas of geometry alongside the gargoyle.

PART 4: Lighting and rendering will be the focus in this tutorial. Light rigs and a variety of render passes will be explained in readiness for part 5; the post production.

PART 5: This the final part of the series will show how the various render passes are composited in Photoshop to create a final render. An account of some of Photoshop's tools will show how versatile this approach can be and show the value of multiple passes for post production.



Gothic Church

INTERIOR CREATION

PART 1: MODELLING THE INTERIOR

CREATED IN:

3ds Max

PART 1

In this first part of the tutorial we'll take care of all the modelling tasks, and we'll end up having all the geometric elements ready for texturing in the next part.

Let's start by creating a new arc shape (**Fig.01**). Set Creation Method to Center-End-End, then click and drag to create the arc itself.

Switch to the Spline sub-object mode, select the spline that composes the arc, enable the Copy option and click on the Mirror vertical button (**Fig.02**).

Enable the 3D Snap icon (make sure that it's set to Vertex) and use it to move one half exactly next to the other, as shown in **Fig.03**. Make sure that the top vertices are perfectly overlapped. Once you're done, disable the 3D Snap.

Fig 01

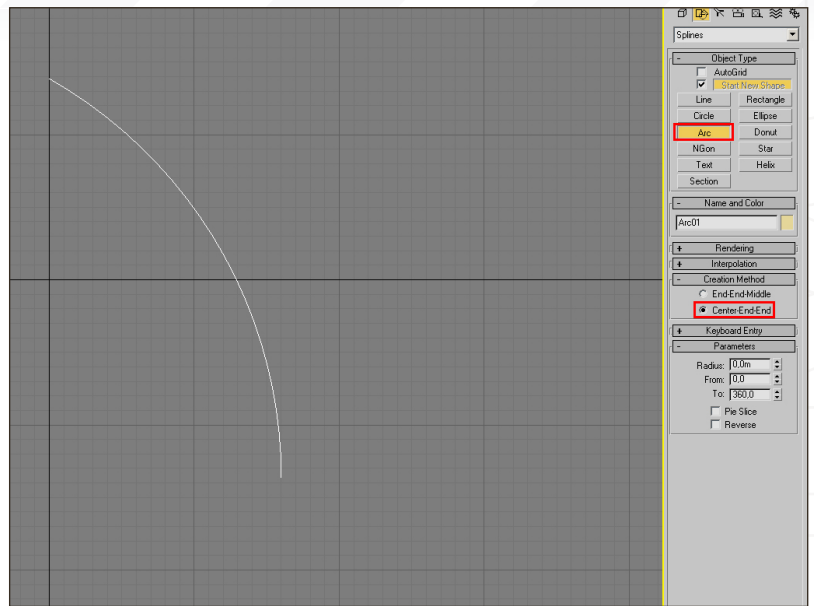


Fig 02

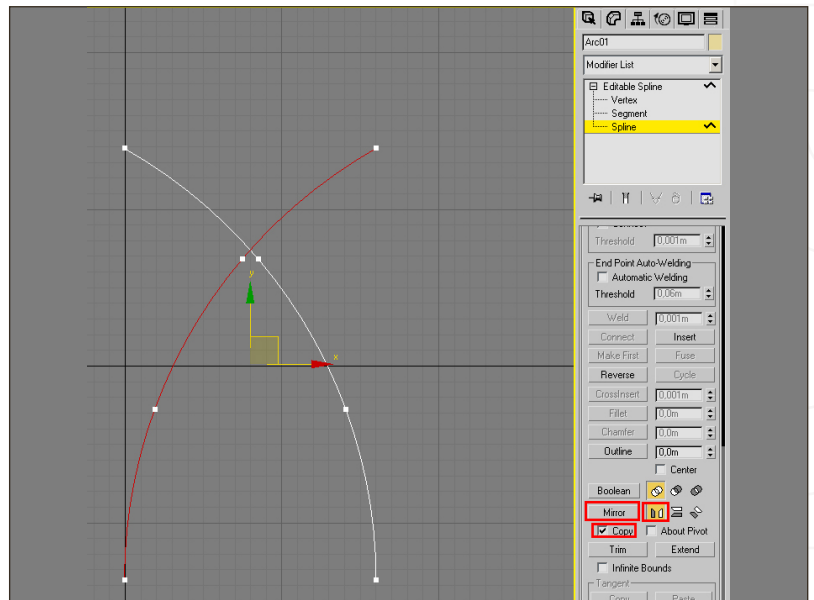
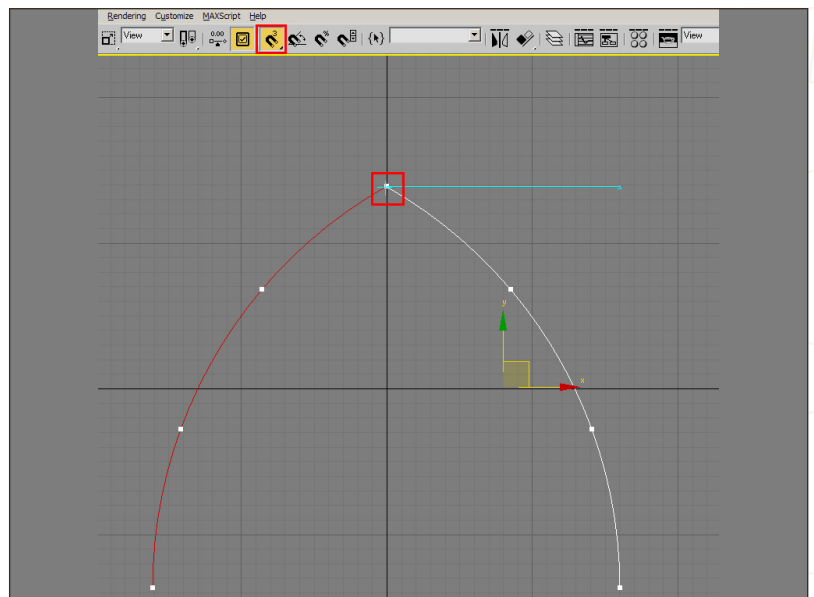


Fig 03



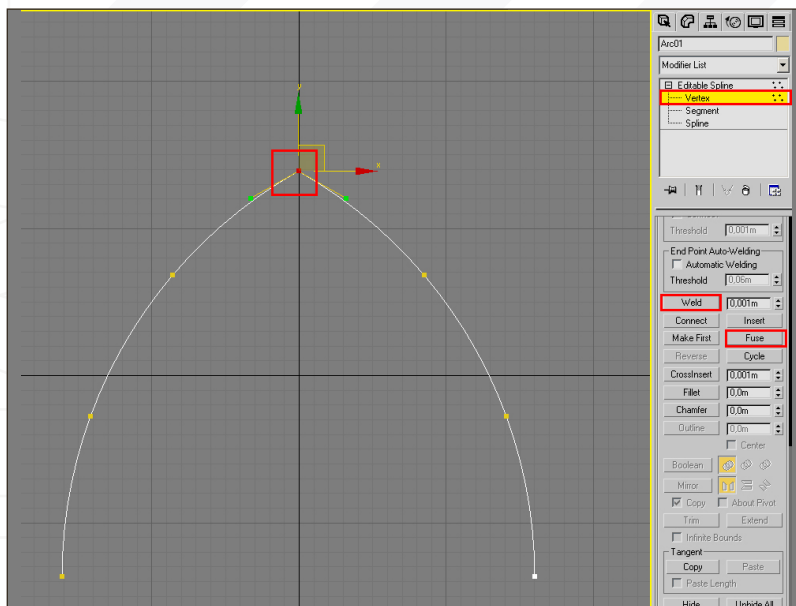


Fig 04

Select both the vertices and then Fuse and Weld them; in this way the two splines will become one, and we'll have our Gothic art prototype (**Fig.04**).

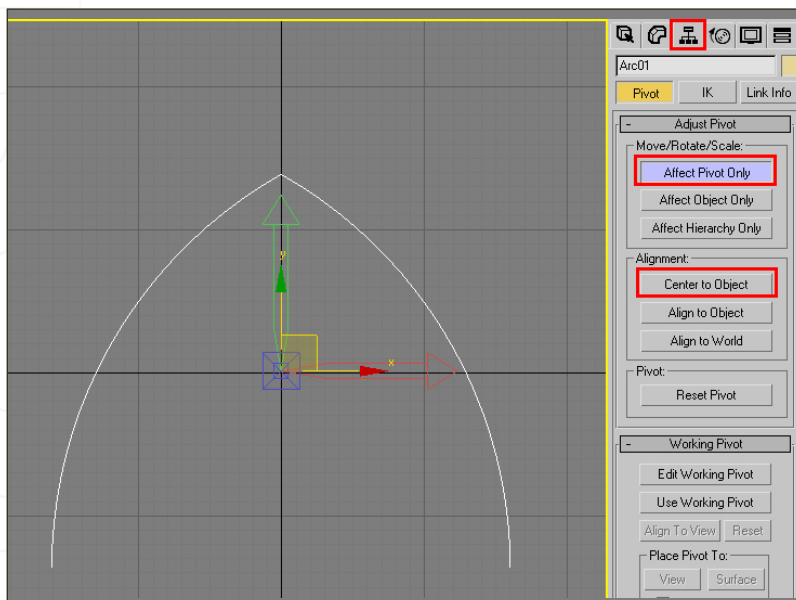


Fig 05

Go to the Hierarchy tab and centre the pivot to the arc object (**Fig.05**).

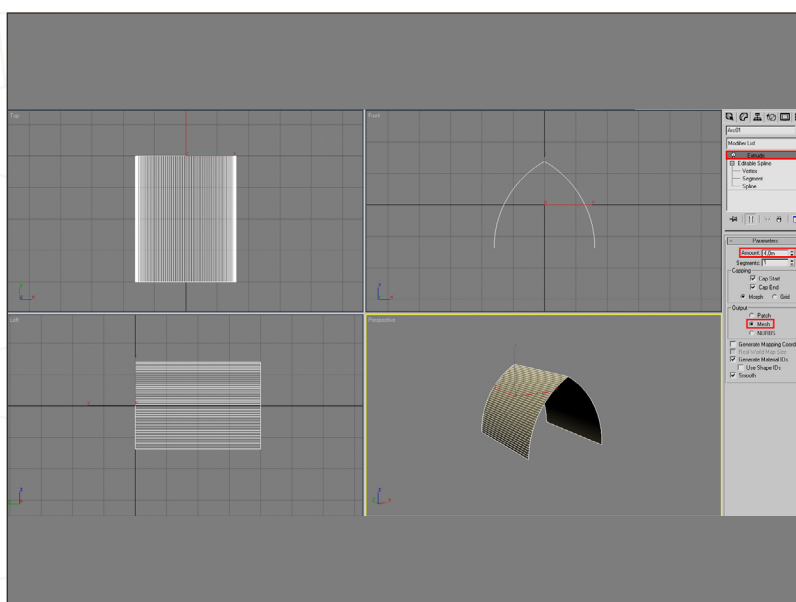
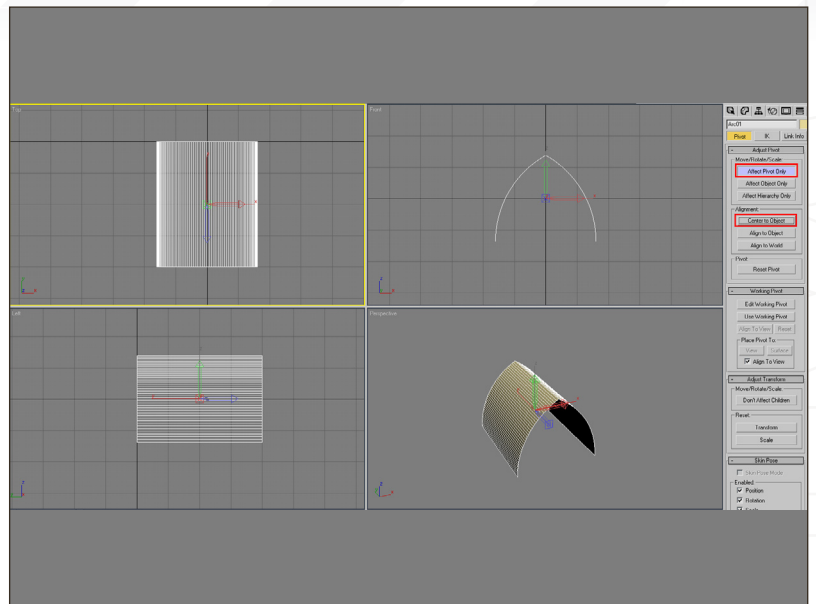


Fig 06

Use the Extrude modifier (which can be found in the Modifiers List) to create a mesh from the arc spline (**Fig.06**).

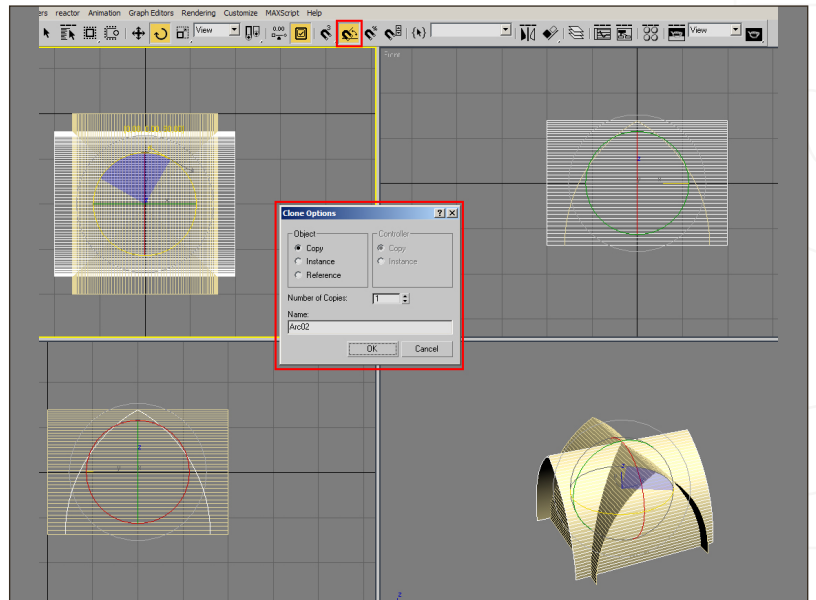
Once again, align the pivot to the centre of the mesh (**Fig.07**).

Fig 07



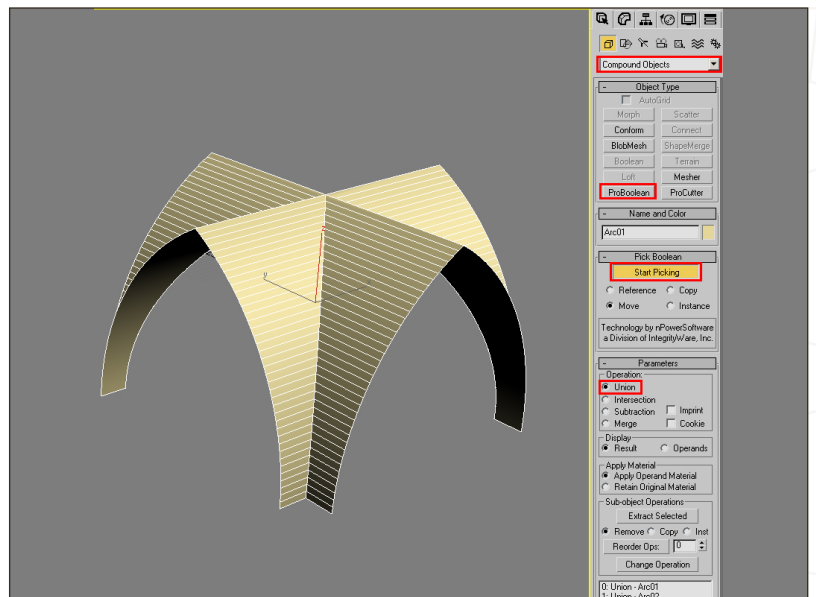
Convert the extrude mesh to Editable Poly. Enable the Angle Snap, create a copy of the arc mesh and rotate it by exactly 90 degrees (**Fig.08**). The two meshes must be perfectly overlapping in their centres.

Fig 08



Select one of the meshes and apply a Pro Boolean operator (you can find it in the Create > Compound Objects menu). Click on the Start Picking button and select the second mesh. Make sure that Operation is set to Union (**Fig.09**).

Fig 09



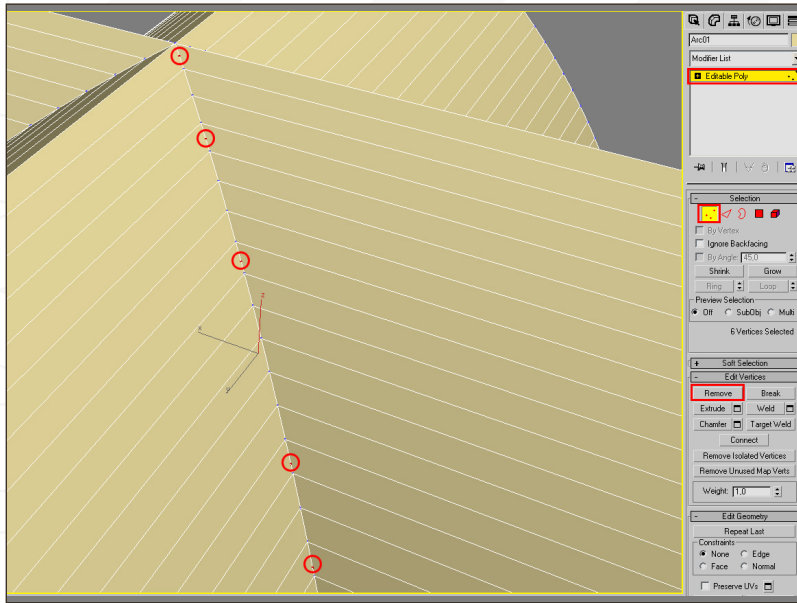


Fig 10

Once the meshes are put together by the boolean operation, it's time to clean up some unnecessary vertices all over the junctions.

Select the vertices marked by red circles in **Fig.10** and then click on the Remove button to delete them.

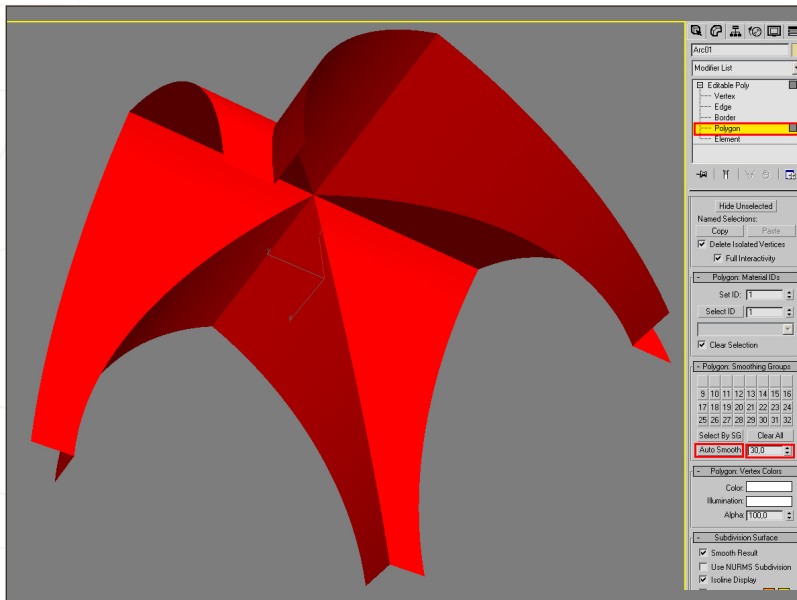


Fig 11

Repeat this last operation all over the mesh, anywhere you see vertices in the middle of polygons. You should end up with a cleaned mesh before you can continue. Now select all the polygons, set the Auto Smooth value to 30 and click on the Auto Smooth button (**Fig.11**). This will give the mesh a more precise shading.

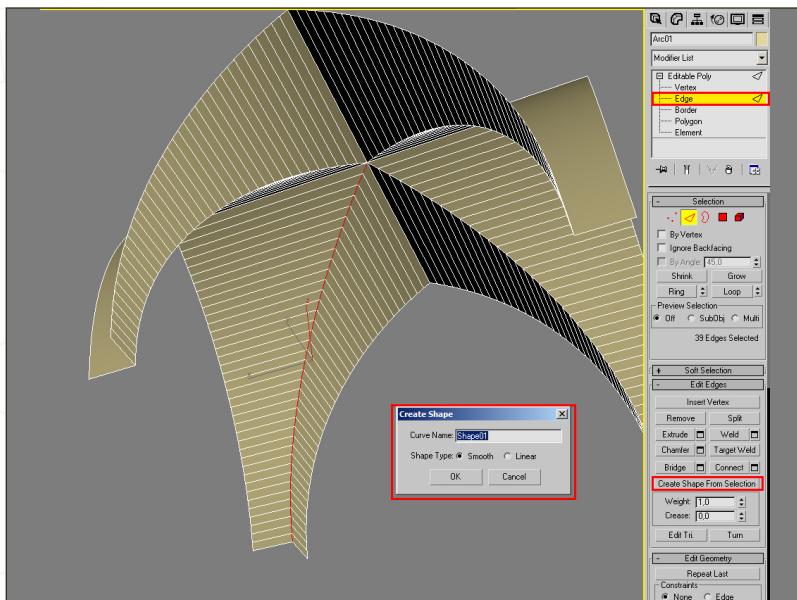
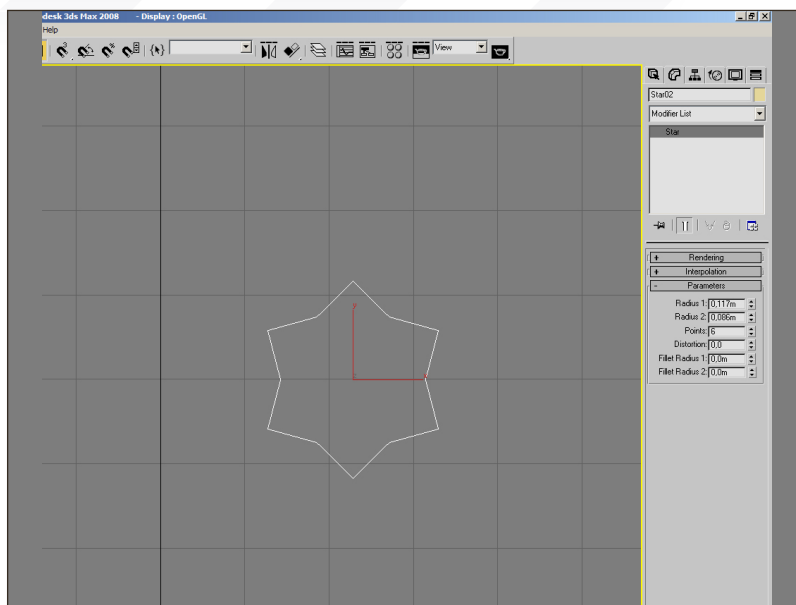


Fig 12

Select all the edges marked in red in **Fig.12** and use the Create Shape From Selection tool to extract a spline from the selection.

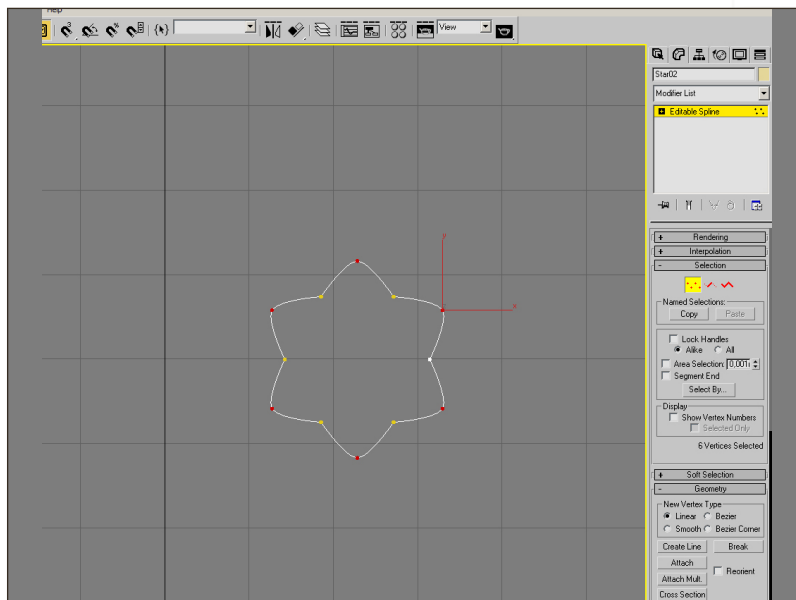
Now create a new star shape, like the one in **Fig.13**.

Fig 13



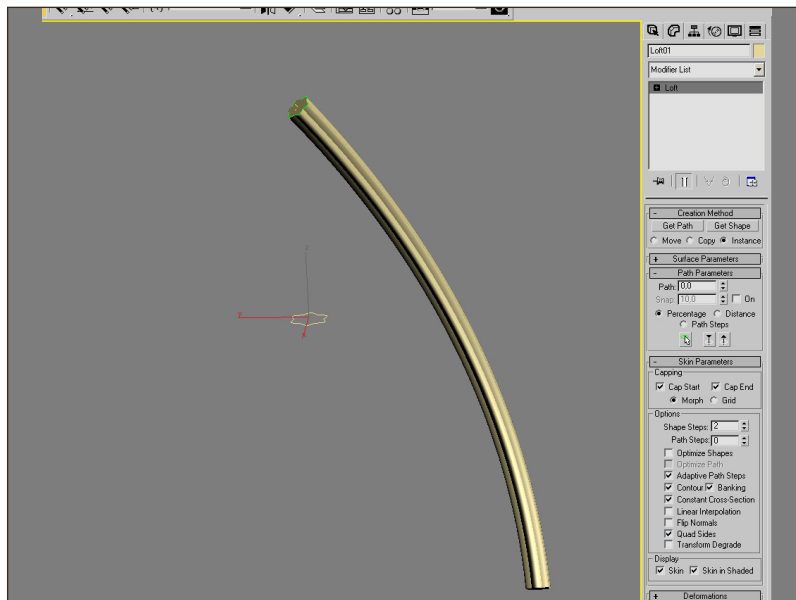
Make it an Editable Spline, select all the external vertices and make them Smooth (right click on them and choose Smooth) (**Fig.14**).

Fig 14



Select the spline you extracted earlier from the arc mesh and create a new Loft using the star as the shape (**Fig.15**). If needed, you can scale the shape sub-object for the loft to set the correct size of the mesh.

Fig 15



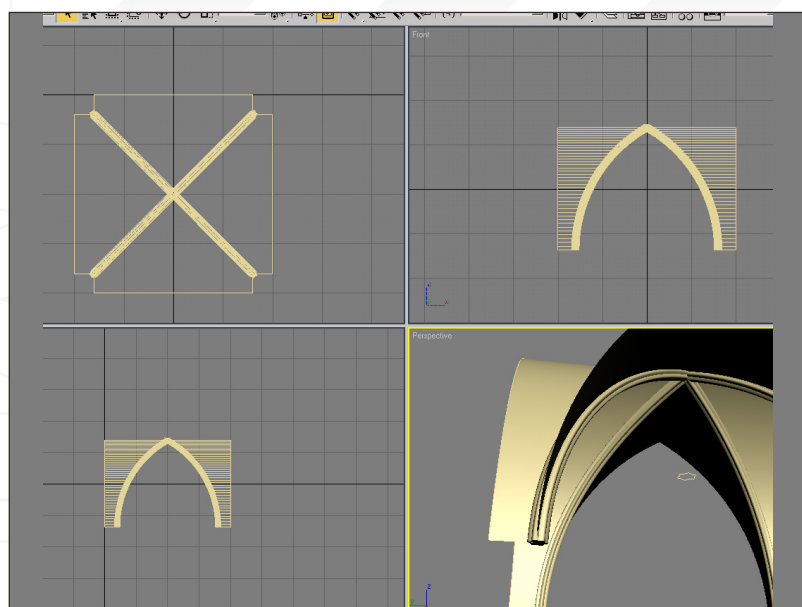


Fig 16

With the Angle Snap still enabled, duplicate and rotate the loft mesh three more times, until you fill all the arcs, as shown in **Fig.16**.

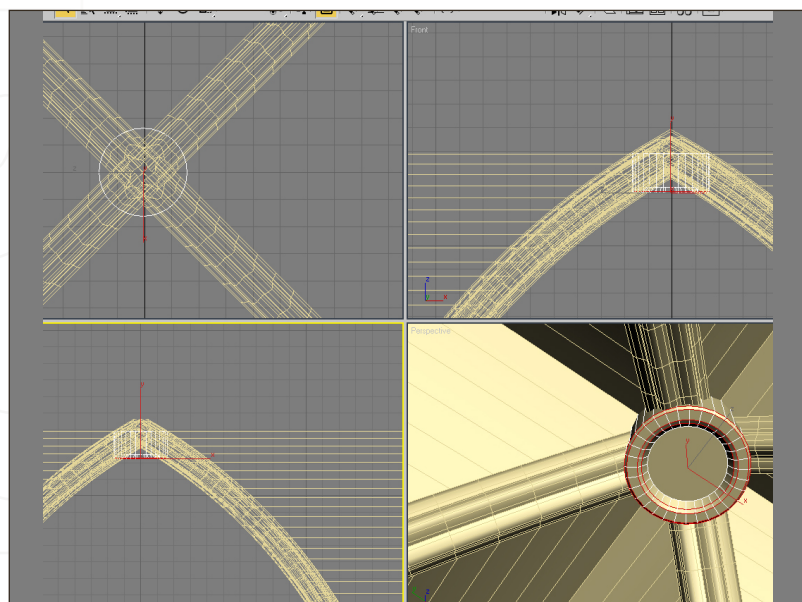


Fig 17

Now create a new Cylinder mesh, scale it down to fit it in the arc's centre and detail it using the Inset and Extrude operators (**Fig.17**).

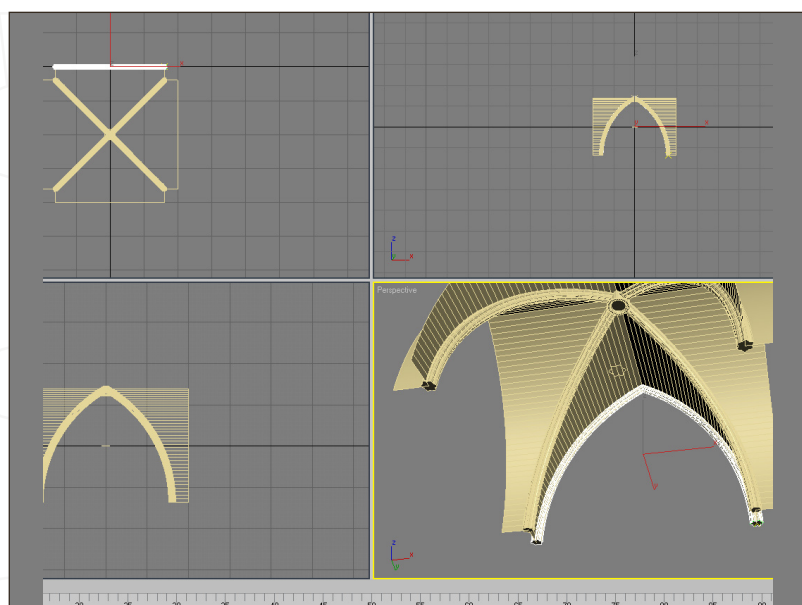
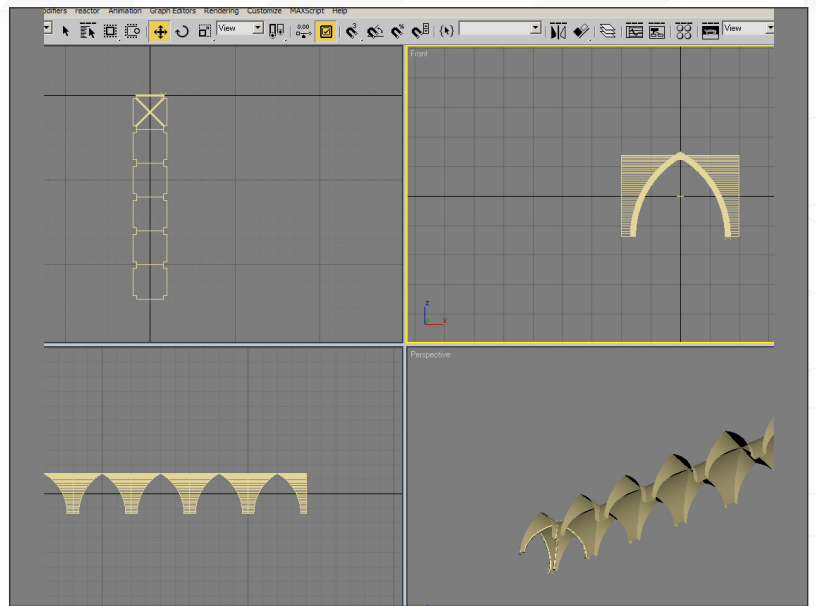


Fig 18

Use the same technique as before to extract the north arc spline, and then create a new Loft object using the star shape (**Fig.18**).

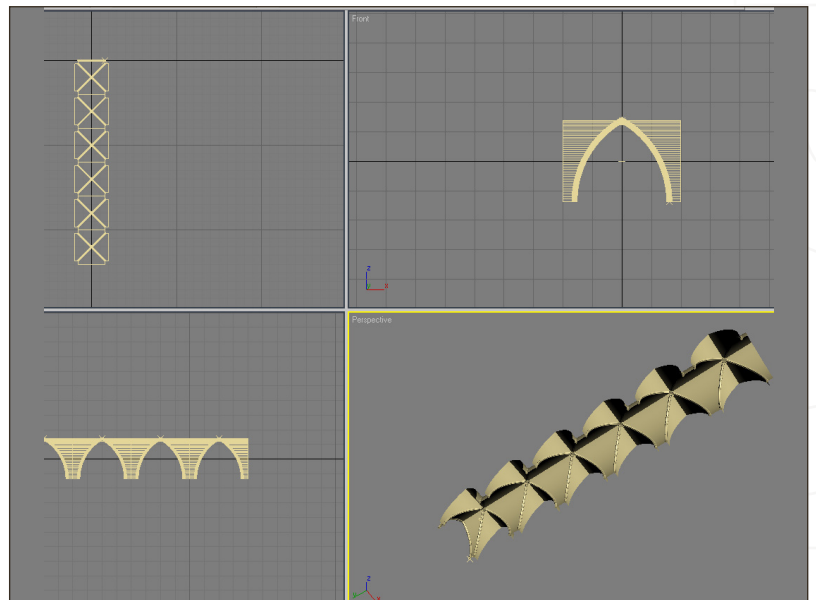
Select and duplicate the arc mesh five times
(**Fig.19**).

Fig 19



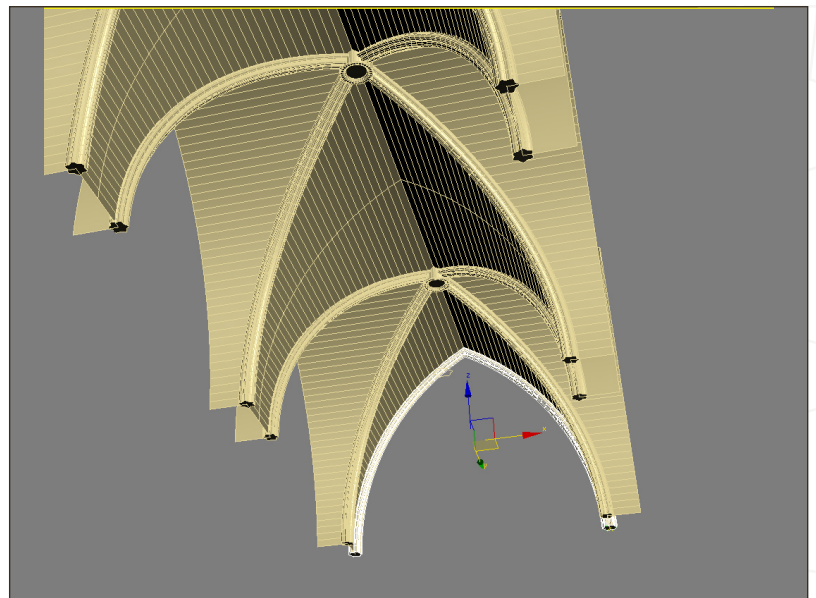
Duplicate all the inner arcs (except for the north arch loft) and use the Align tool (Ctrl + A) to perfectly align everything in place (**Fig.20**).

Fig 20



Don't forget to align the central cylinders, too (**Fig.21**). Select the north arc spline you extracted earlier and create a copy of it.

Fig 21



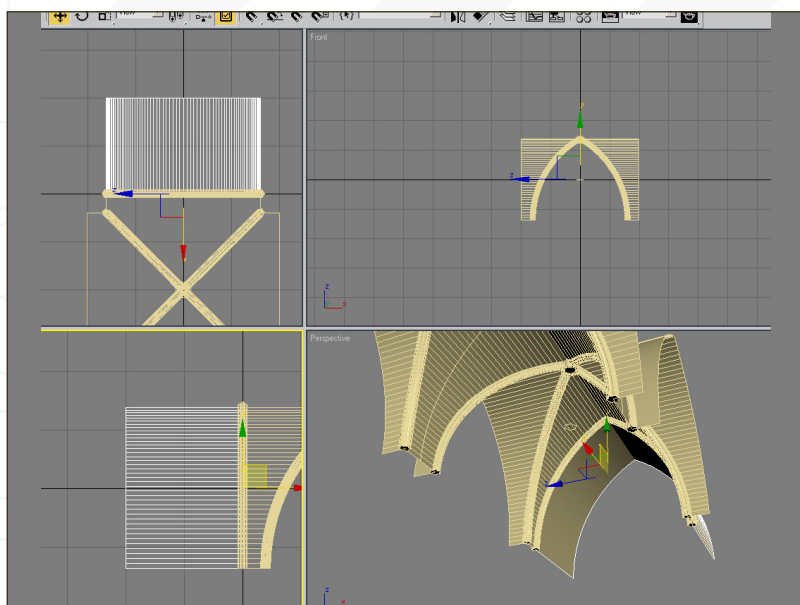


Fig 22

Use the Extrude modifier on one of the spline copies to extend the northern arc outside (Fig.22).

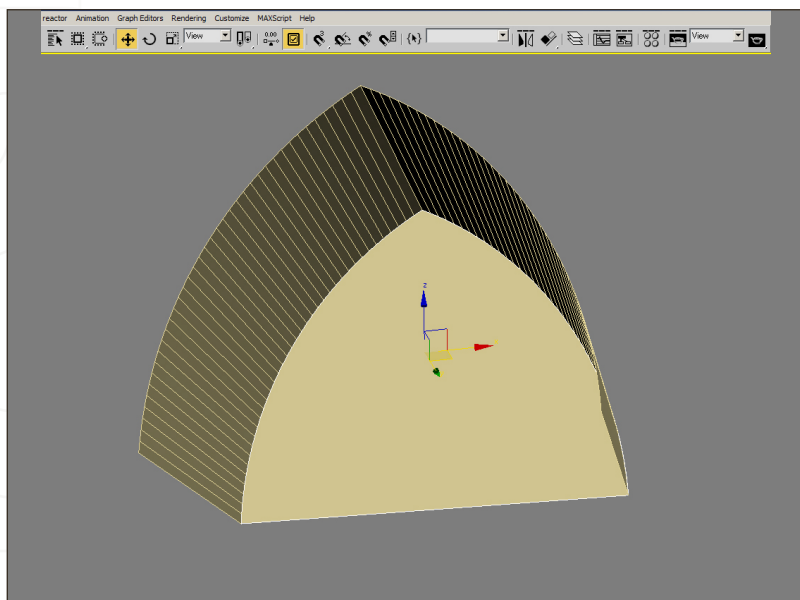


Fig 23

Select the other copy of the spline, connect the two bottom vertices and convert the spline to Editable Poly, to create a cap for the arc (Fig.23).

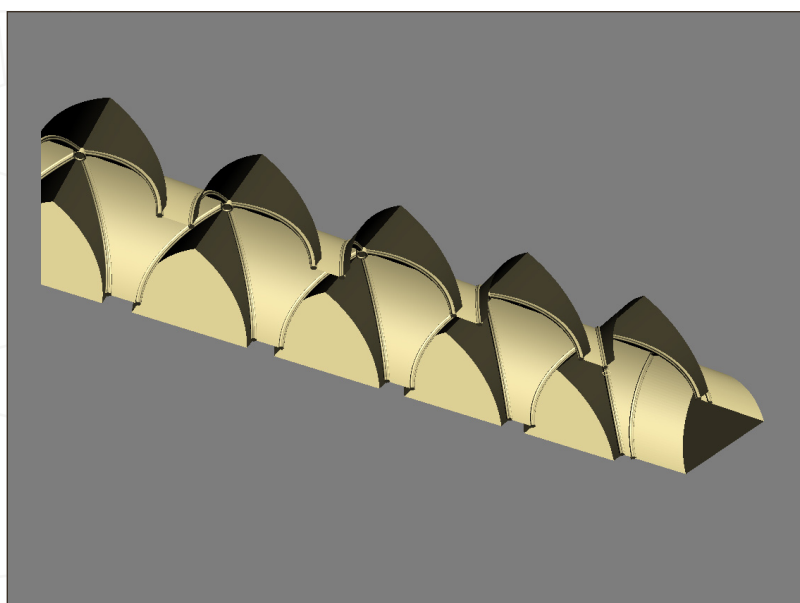
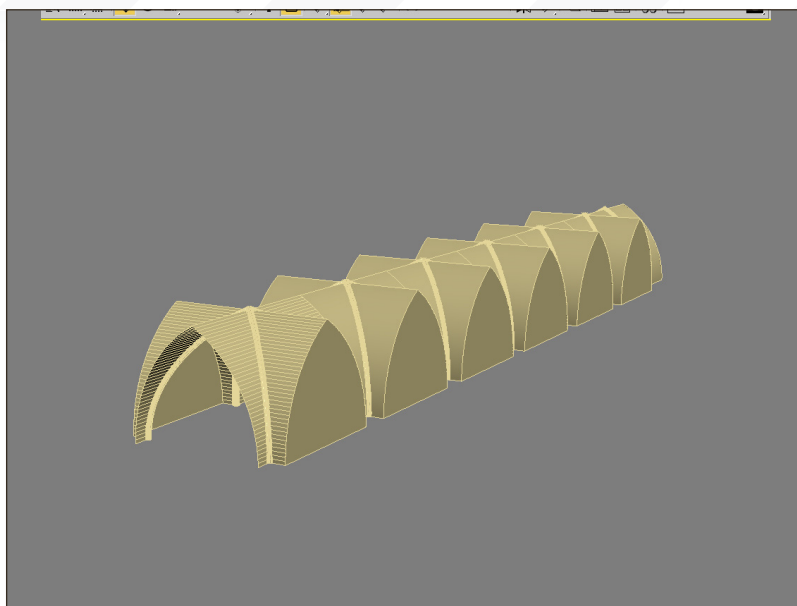


Fig 24

Duplicate and rotate this new mesh for all the other side arcs (Fig.24).

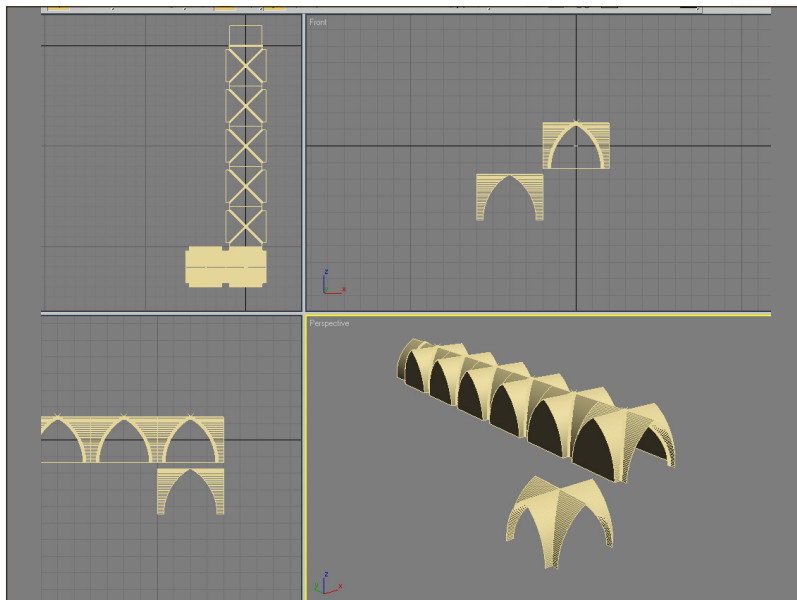
Repeat the operation to fill the arcs on the other side (**Fig.25**).

Fig 25



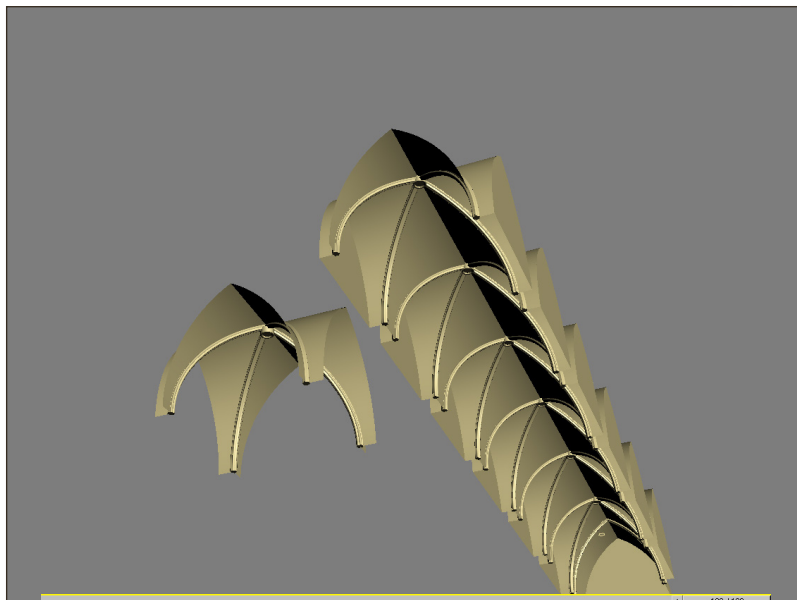
Create a copy of the arc mesh and place it down, as shown in **Fig.26**.

Fig 26



Use the Align tool to position it exactly as shown in **Fig.27**. It must be aligned to the upper arc.

Fig 27



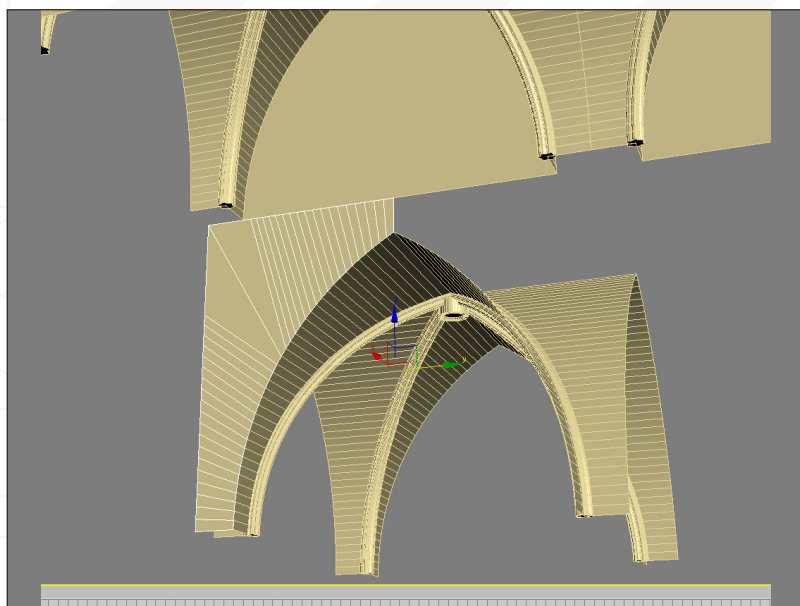


Fig 28

Select half of the arc contour and extrude the edges outwards (**Fig.28**).

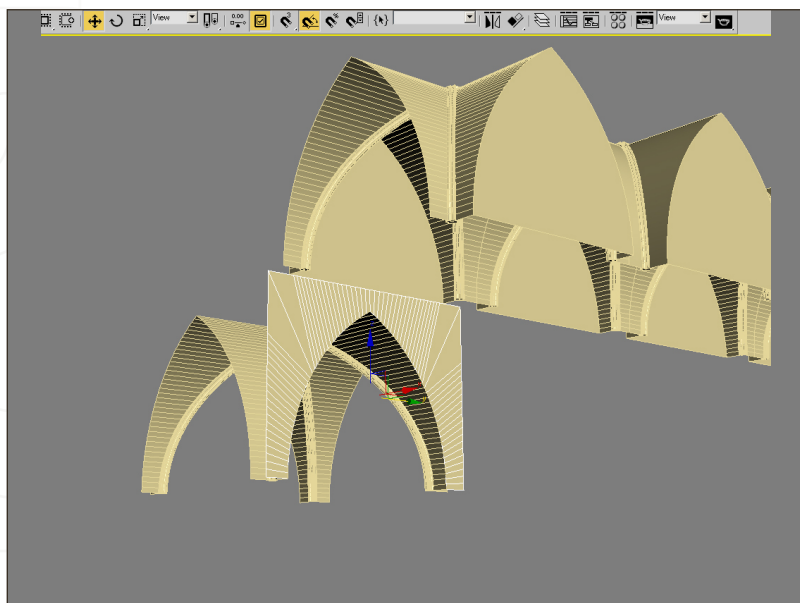


Fig 29

Delete half of the arc (the one you did not extrude), duplicate the extruded side and mirror it. Use the 3D Snap to put the two halves together again, and weld the vertices in the middle (**Fig.29**).

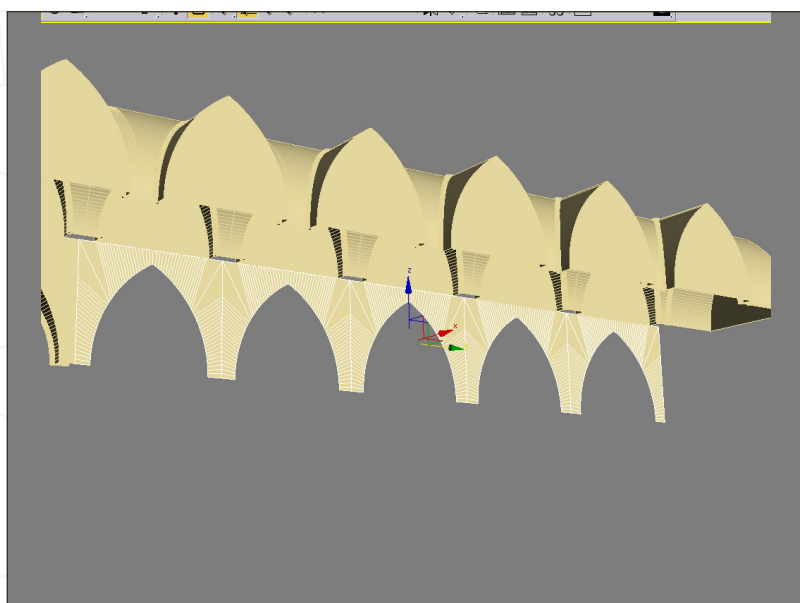
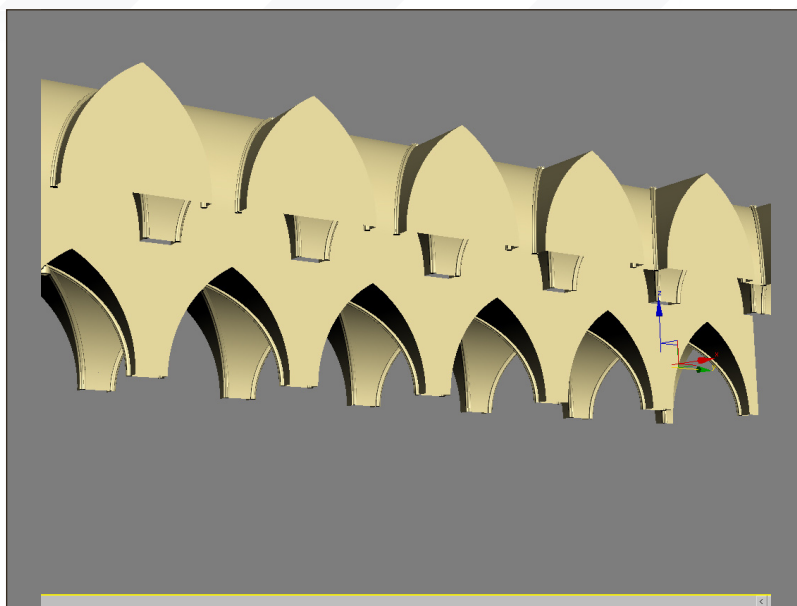


Fig 30

Duplicate this new mesh for every other upper arc (**Fig.30**).

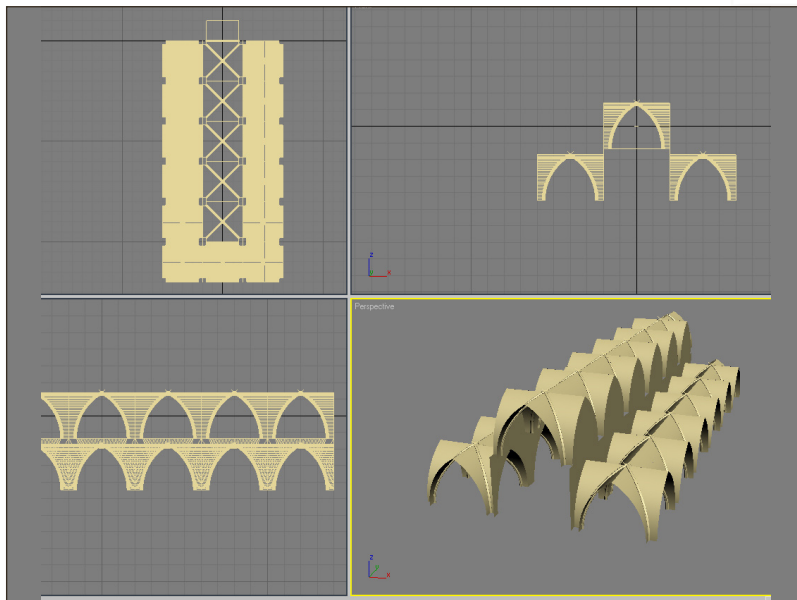
Now duplicate and position all the outer arcs, as shown in **Fig.31**.

Fig 31



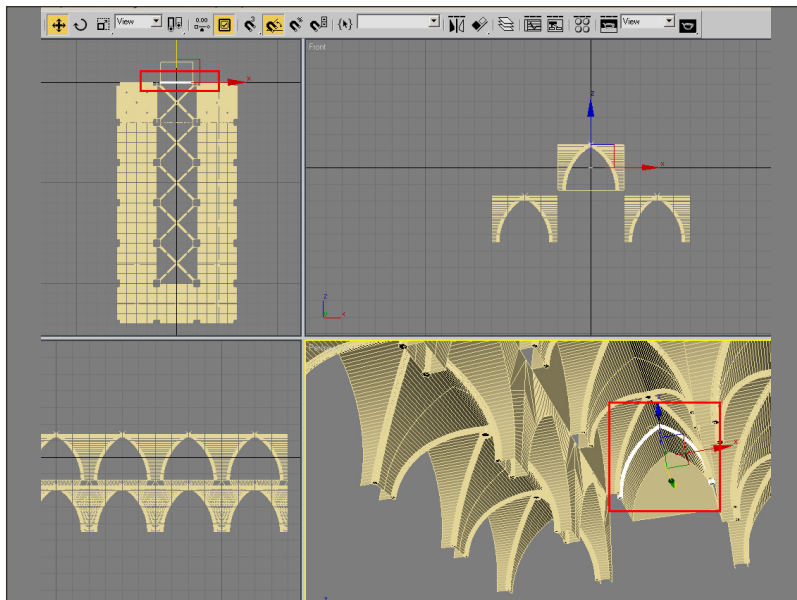
Repeat these steps for the other side as well (**Fig.32**).

Fig 32



Select the northern arc loft you created earlier (**Fig.33**).

Fig 33



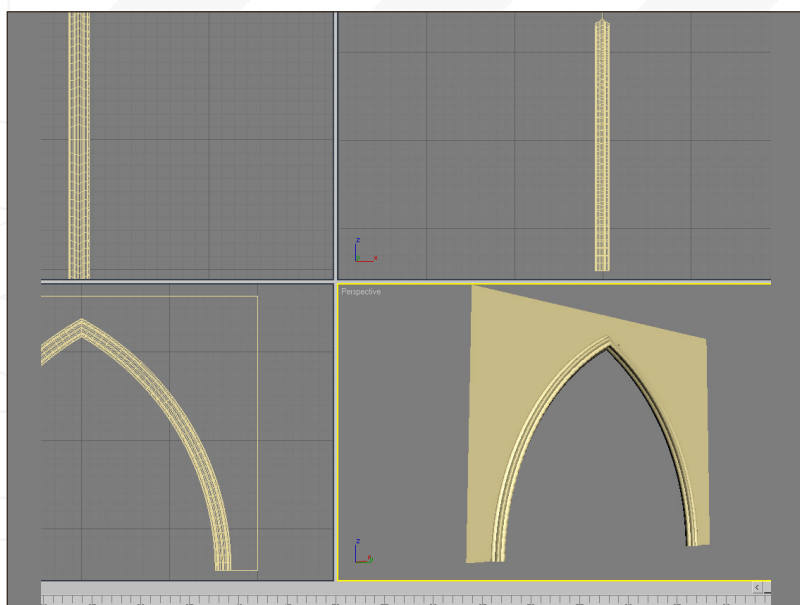


Fig 34

Duplicate, rotate and position it for all the other flat walls we've just created. Make sure that you do it for both sides of the church (**Fig.34**).

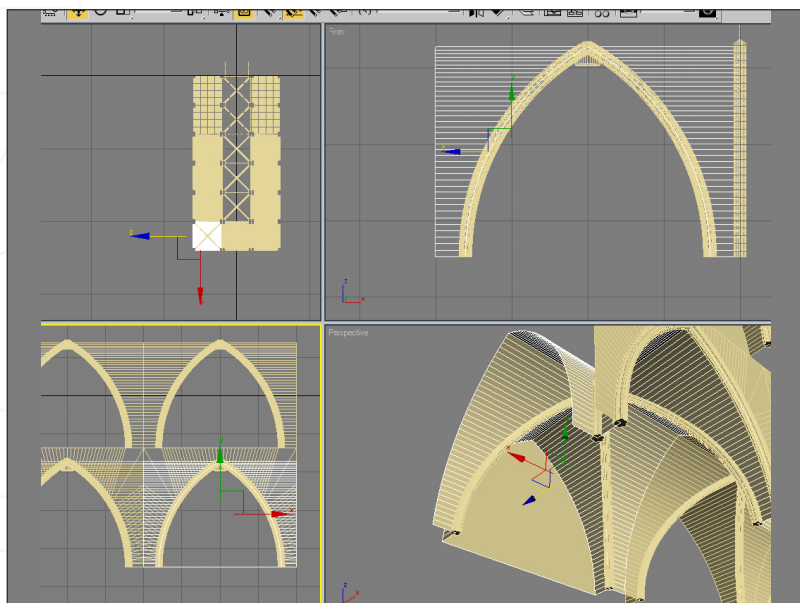


Fig 35

Duplicate and position the closing arc for the side part (**Fig.35**).

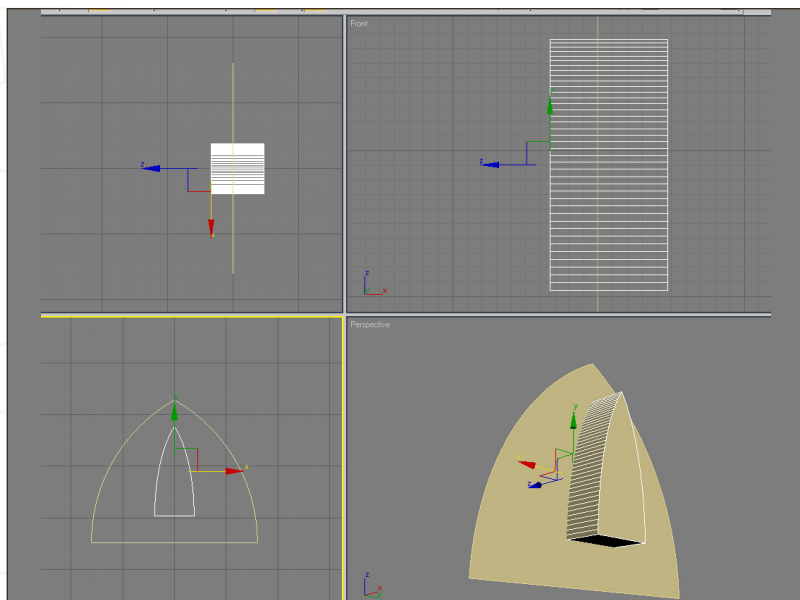
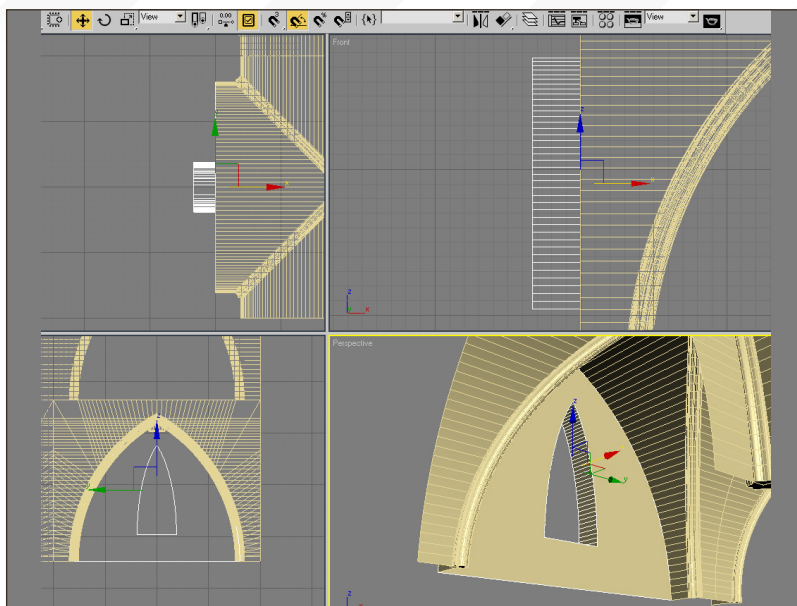


Fig 36

Create an inner arc (you can obtain it by duplicating the closing arc, and scaling it down as seen in **Fig.36**) and extrude it.

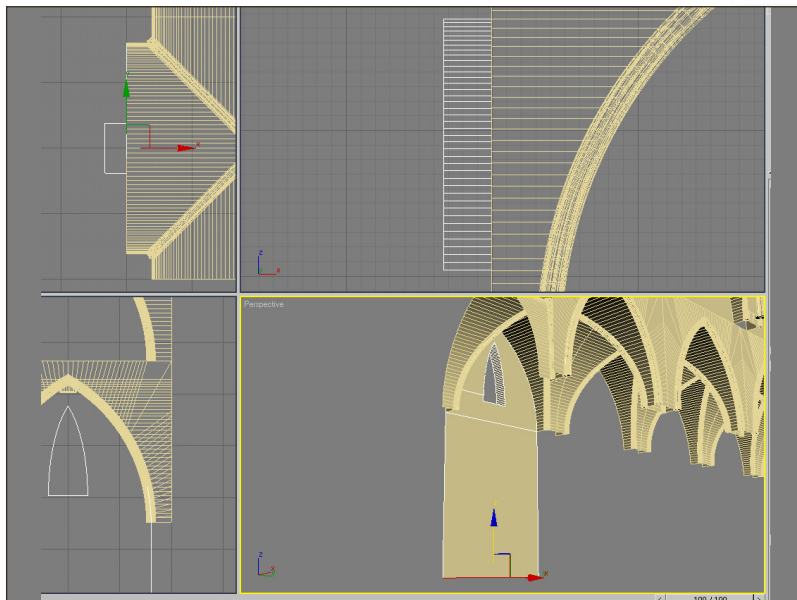
Use the ProBoolean tool to subtract this arc from the bigger one (**Fig.37**).

Fig 37



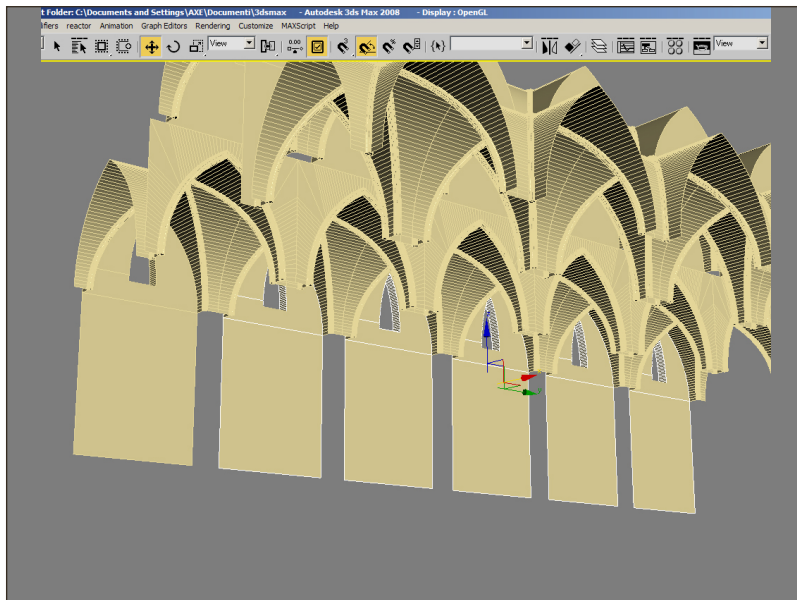
Select the lower edge and extrude it down (**Fig.38**). This edge should be extruded all the way down to the floor of the church.

Fig 38



Duplicate this new mesh for all the other arcs on the left side of the church. Use the Align tool and the 3D Snap to perfectly align the new meshes to the arcs (**Fig.39**).

Fig 39



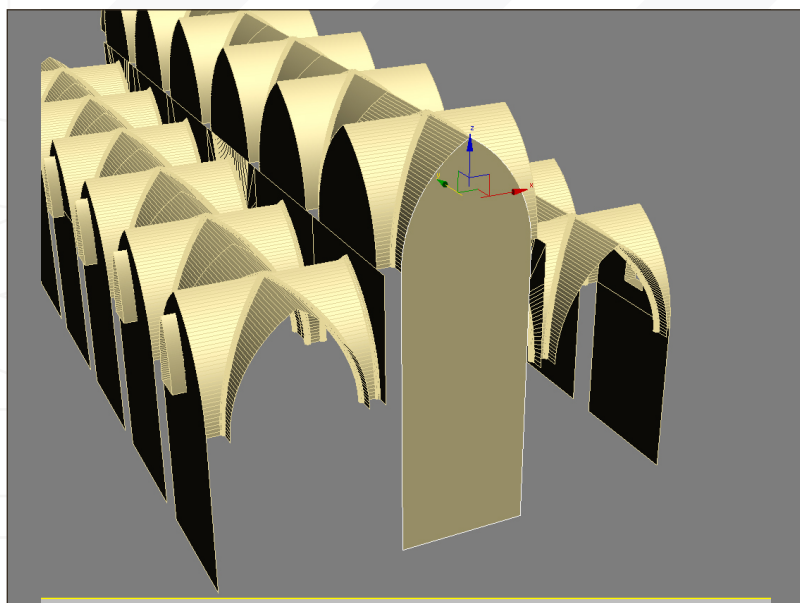


Fig 40

Repeat these steps for the right side, too, then create a closing arc for the back side of the church (**Fig.40**).

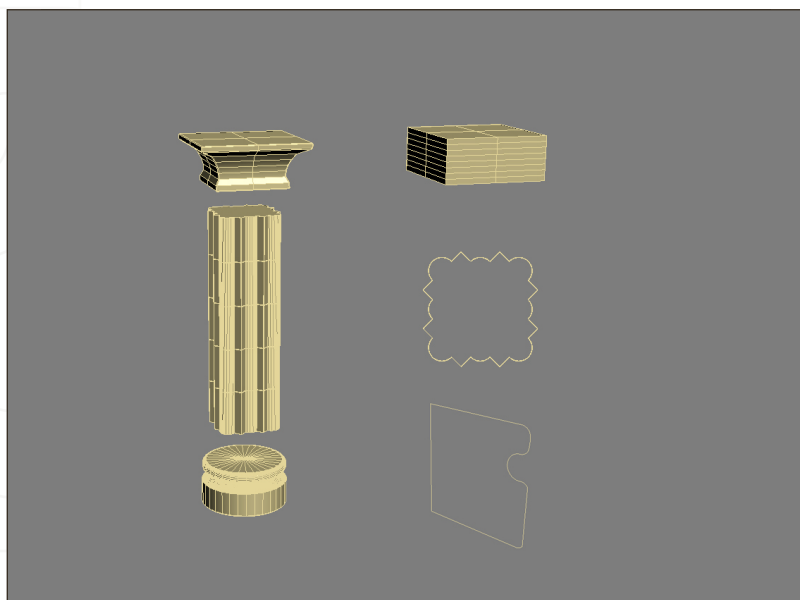


Fig 41

Now let's take care of the pillars. As you can see in **Fig.41**, the pillar was obtained using the same techniques we've seen before. The top part is just a box with a good amount of subdivisions; then the Taper modifier was used to give the mesh that shape. The middle part was made with the extrusion of a shape. The bottom mesh was created using a spline and the Lathe modifier.

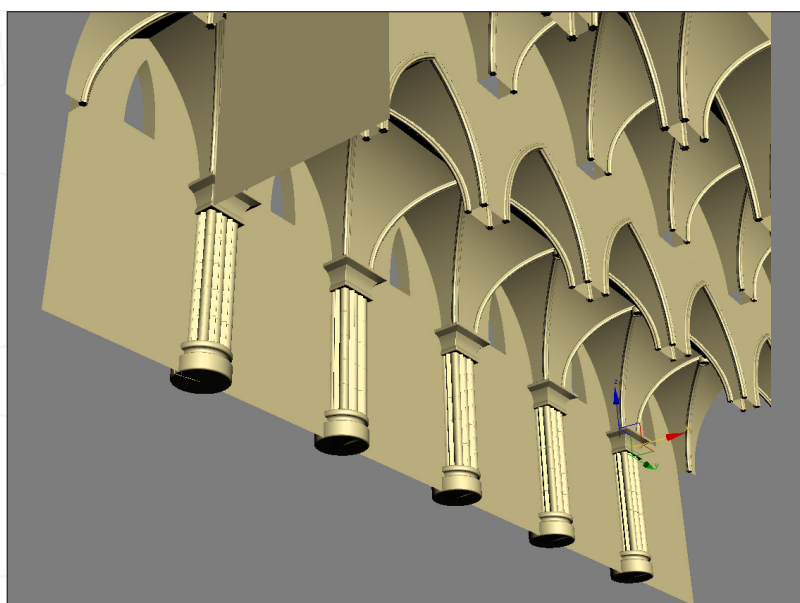
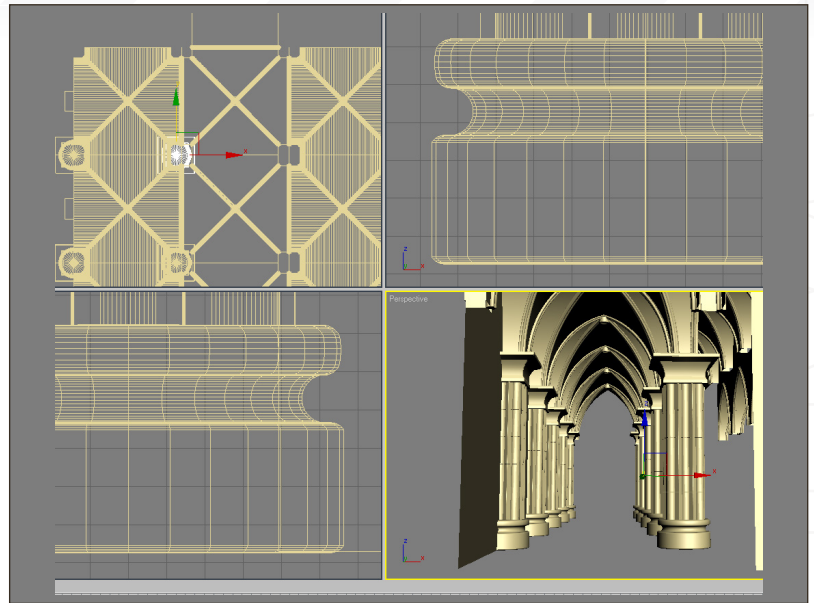


Fig 42

Duplicate the pillar and position the new copies, as shown in **Fig.42**.

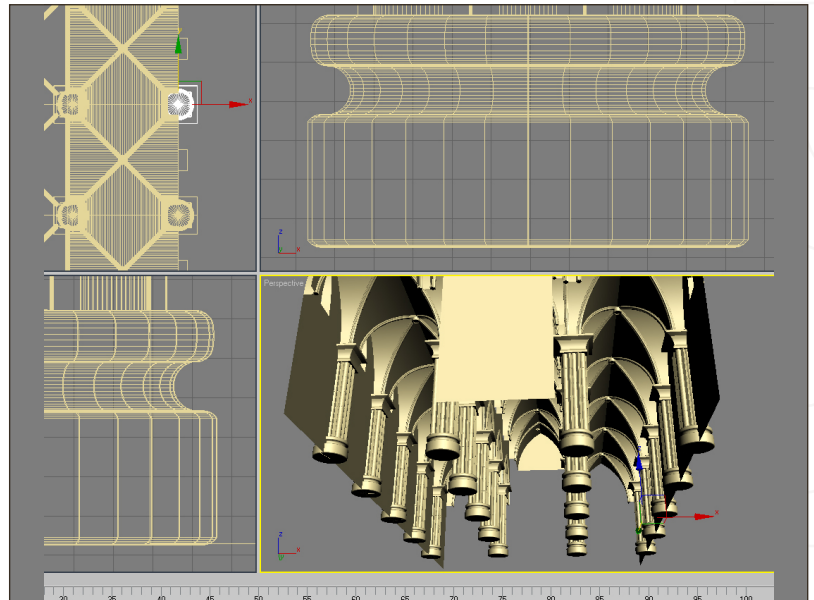
Create some more pillars and position them just below the top arcs (**Fig.43**).

Fig 43



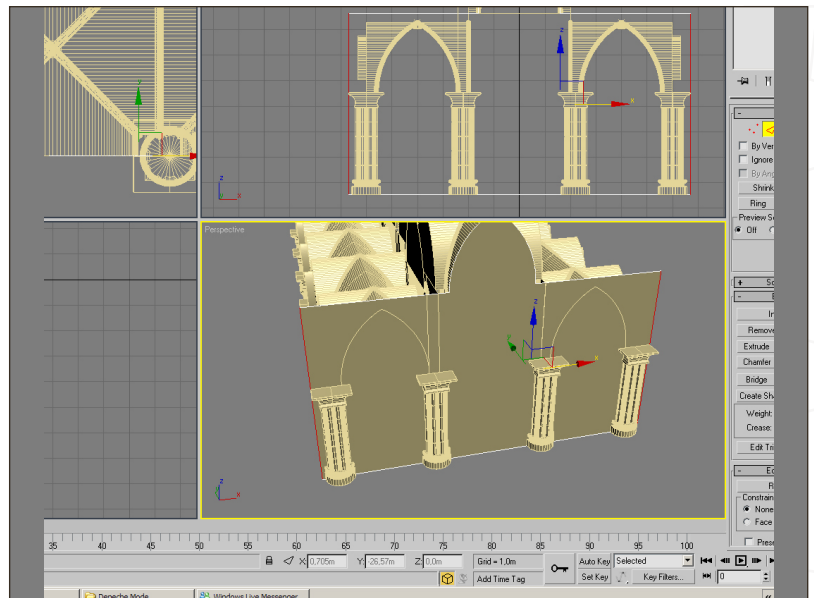
Duplicate the pillars for the other side of the church (**Fig.44**).

Fig 44



Create some more pillars for the back side (**Fig.45**).

Fig 45



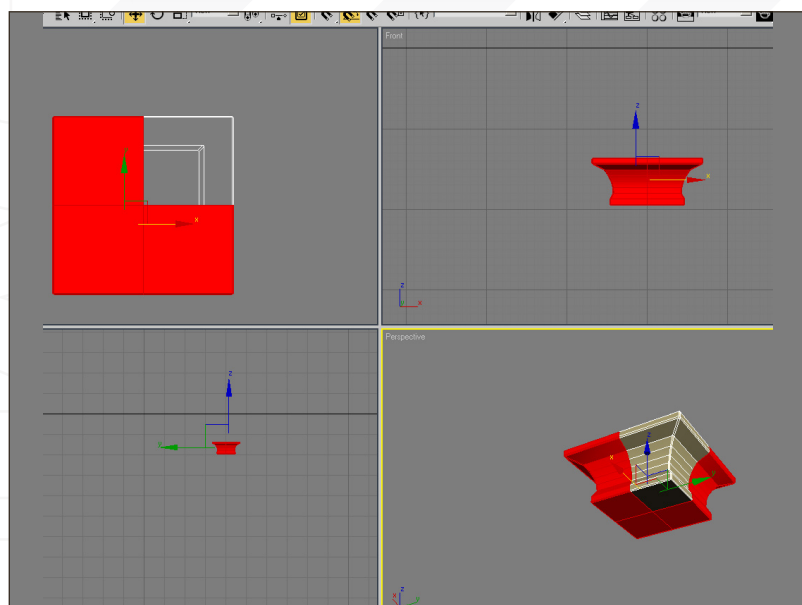


Fig 46

Duplicate one of the top objects from the pillar. Select and delete the polygons, as shown in **Fig.46**, so you have just one quarter of the entire mesh.

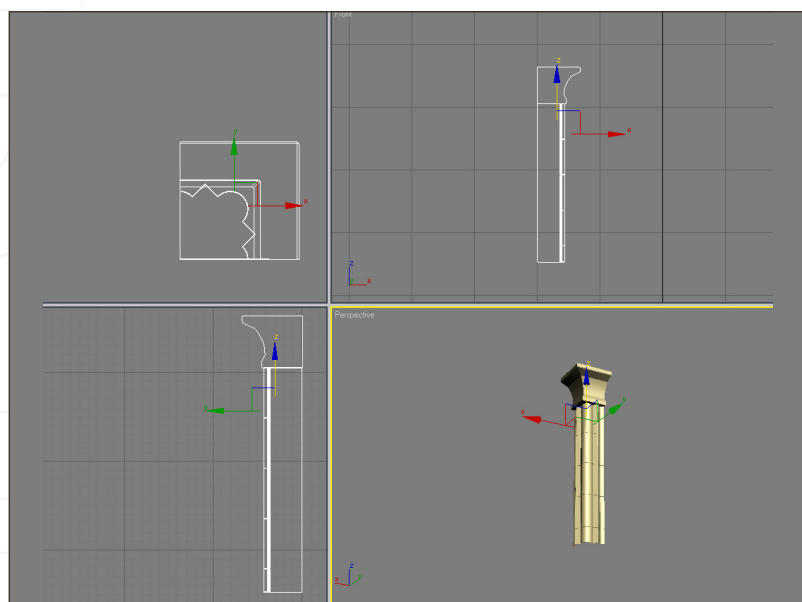


Fig 47

Do the same with the middle part of the pillar (**Fig.47**).

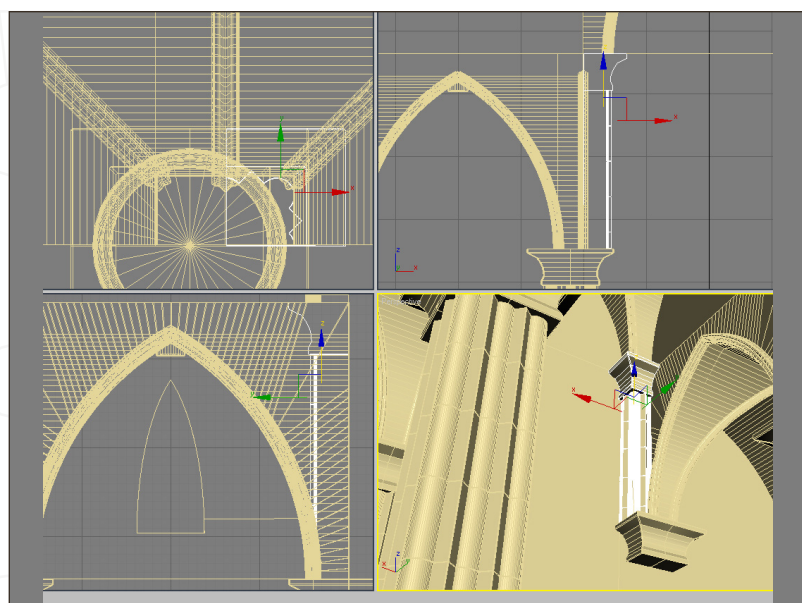
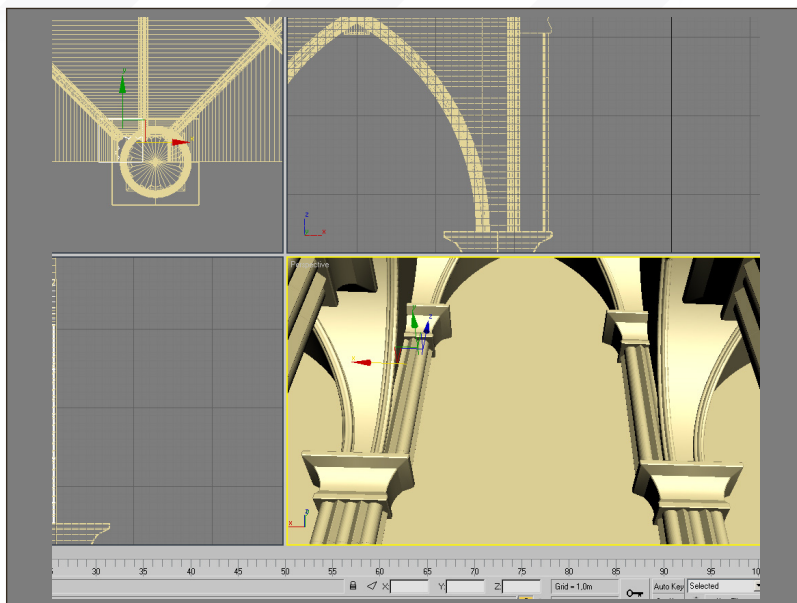


Fig 48

Put the two meshes together and scale them down. Position this new pillar, as shown in **Fig.48**. Make sure to perfectly fill the gap.

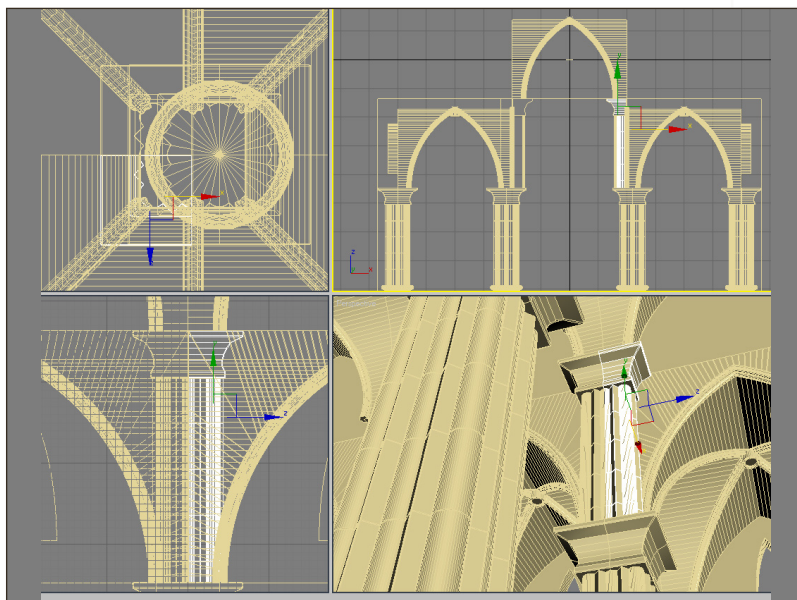
Duplicate and mirror the new pillar and position it on the other side of the arc, filling the other gap as well. (**Fig.49**).

Fig 49



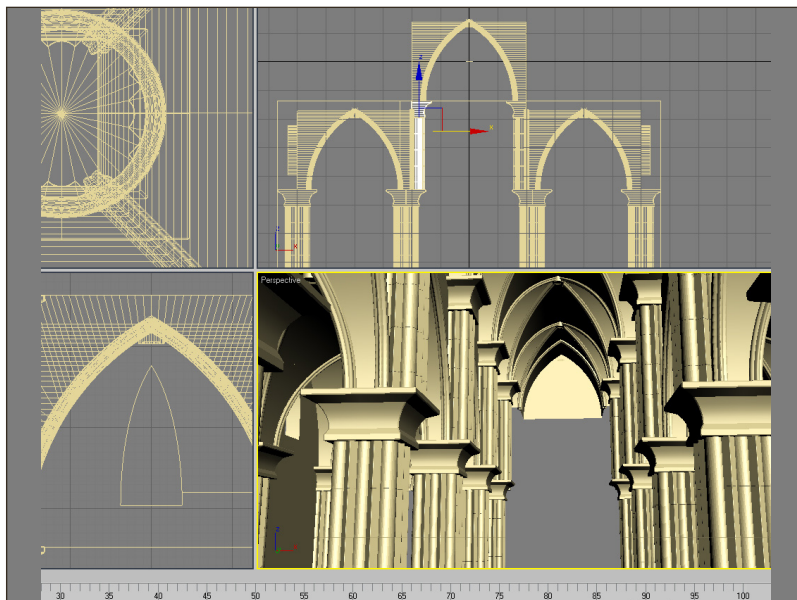
Where two arcs meet, we need to put together two pillars (**Fig.50**).

Fig 50



Keep duplicating and positioning the pillars in the top part of the church (**Fig.51**).

Fig 51



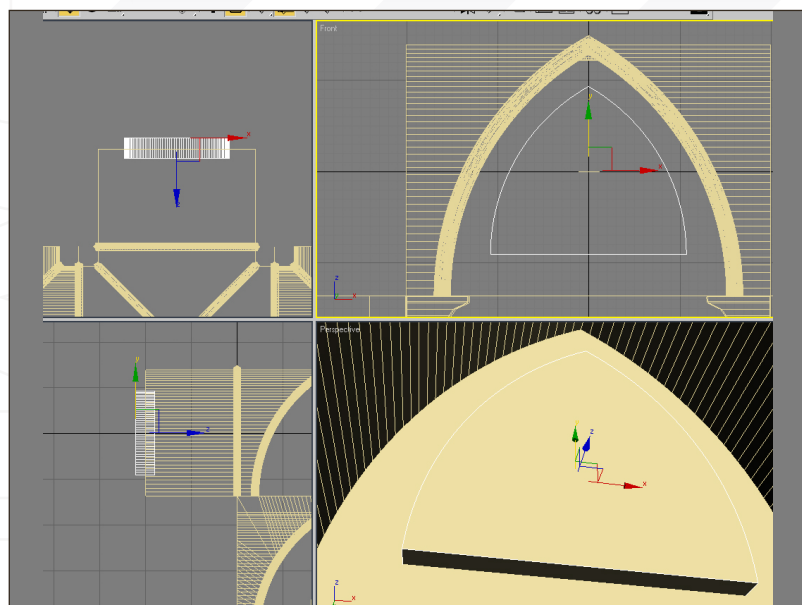


Fig 52

Duplicate and extrude the northern arc. We need it to create the main window (**Fig.52**).

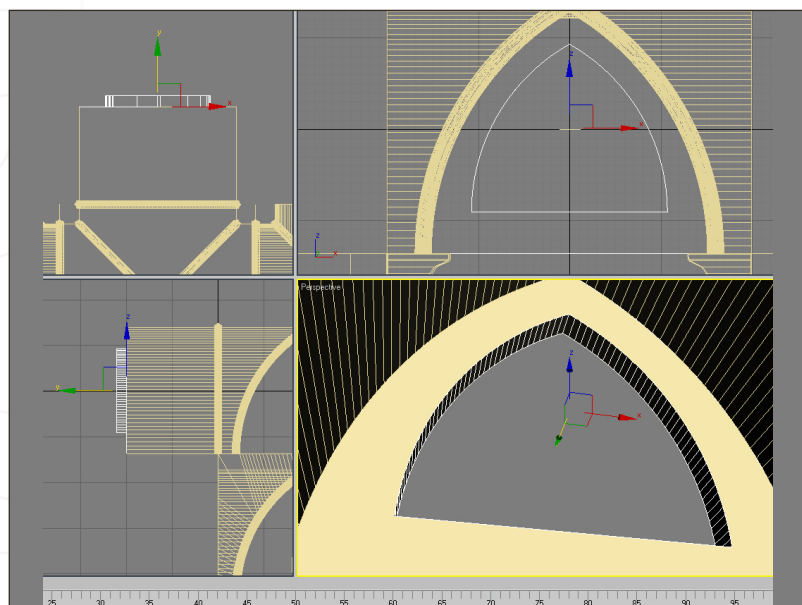


Fig 53

Use the ProBoolean tool just like earlier, to create the window (**Fig.53**).

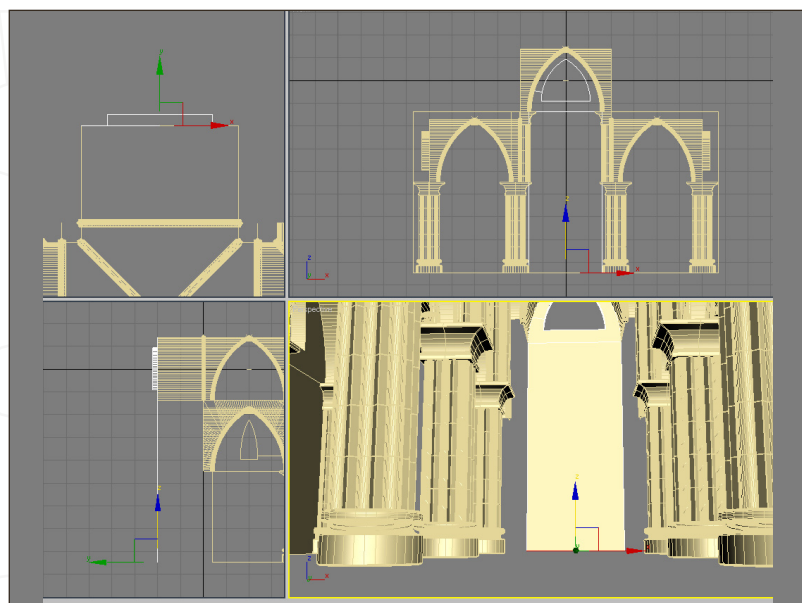
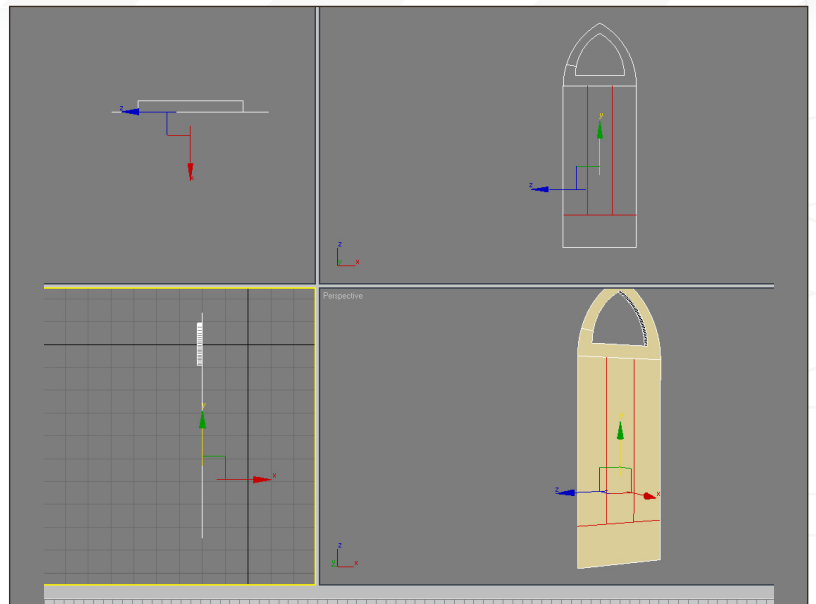


Fig 54

Extrude the bottom edge all the way down to the floor (**Fig.54**).

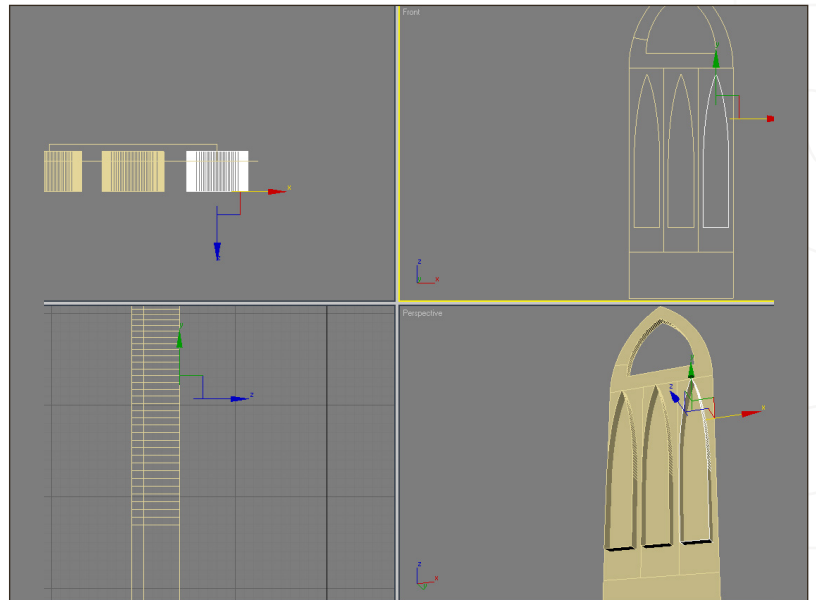
Create some cuts in the mesh just like the ones marked in red in **Fig.55**.

Fig 55



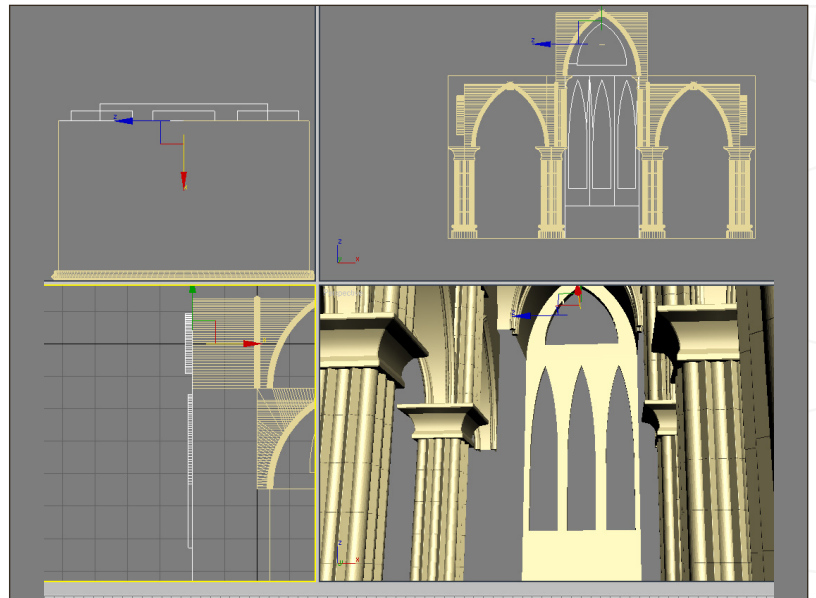
Duplicate/Scale some more arcs, extruding them just like before (**Fig.56**).

Fig 56



Once again, use the ProBoolean tool to create the three minor windows below the big one. (**Fig.57**).

Fig 57



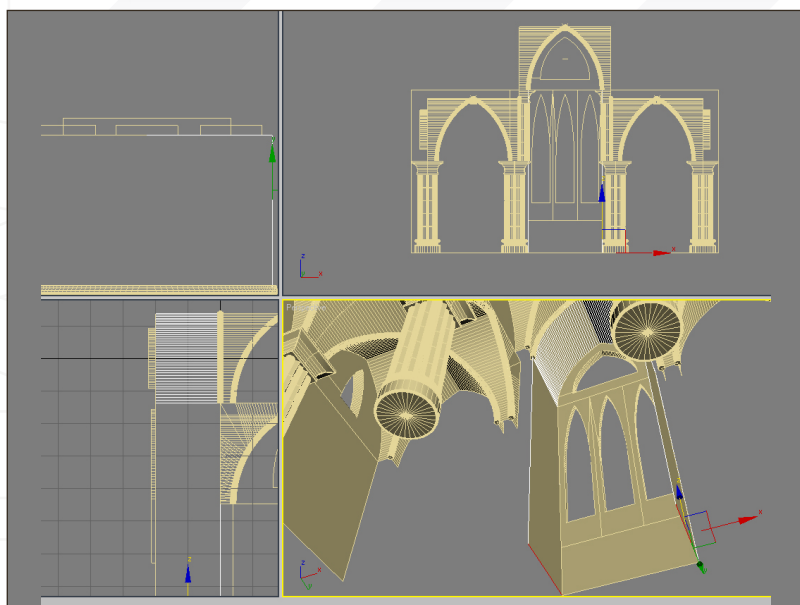


Fig 58

Extrude the edges marked in red in **Fig.58** all the way down to the floor. This will create the side walls.

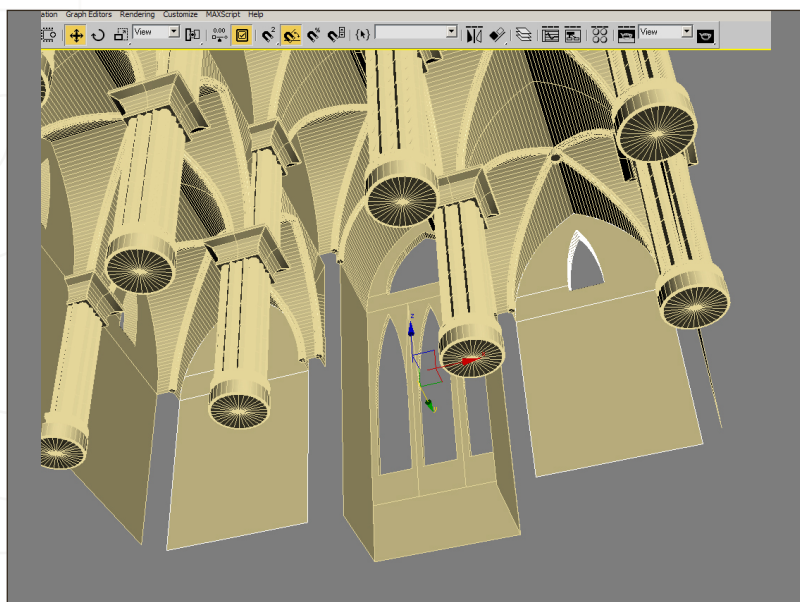


Fig 59

Create two more closing arcs to close the walls on the left and right of the northern wall (**Fig.59**).

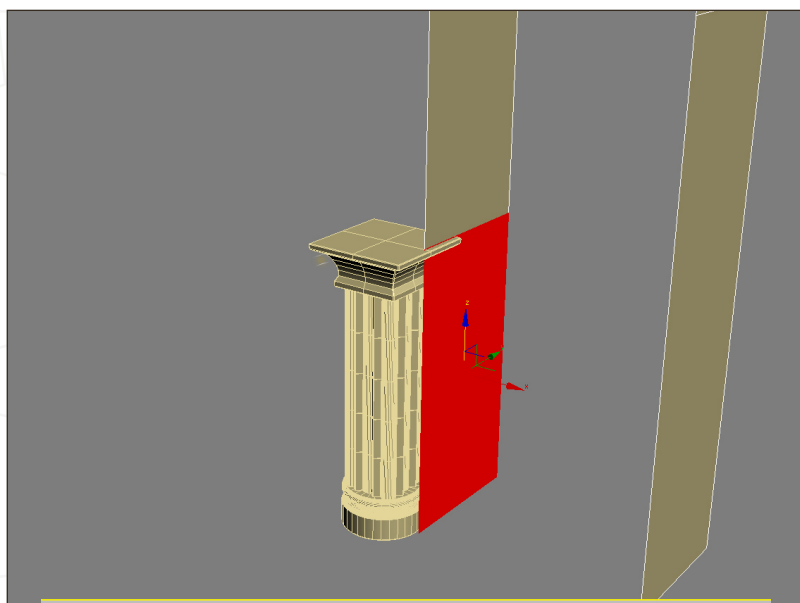
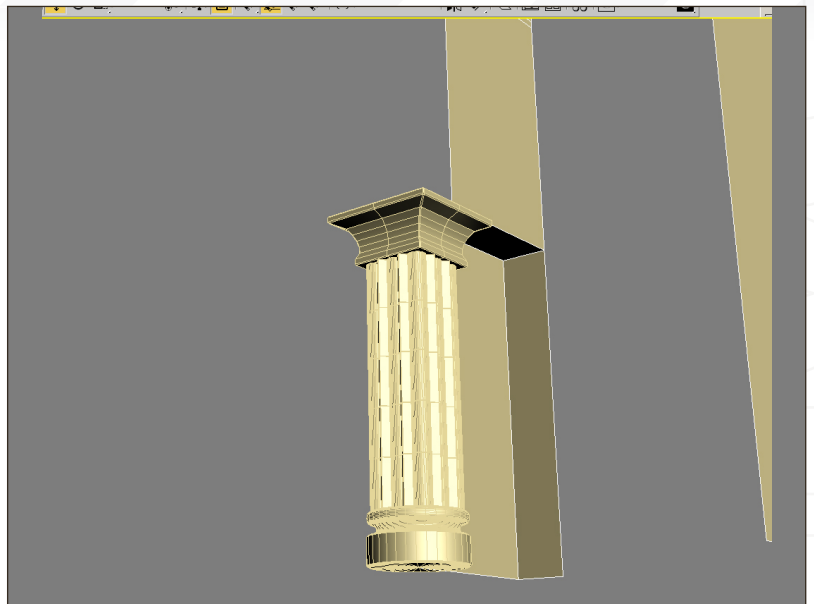


Fig 60

Place a new pillar on the left side of the northern wall, and use it as a reference to create a new cut in the mesh. Select the resulting polygon (**Fig.60**).

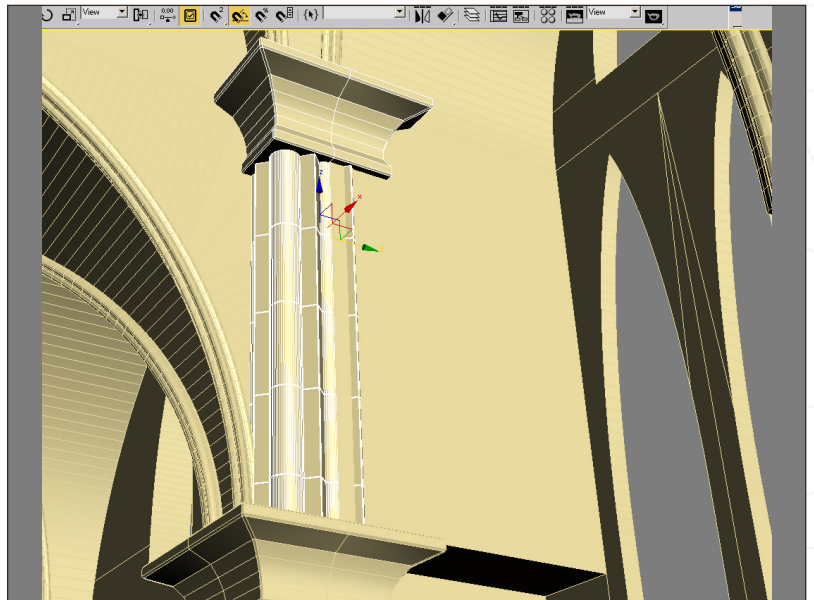
Create an extrusion like the one in **Fig.61**.

Fig 61



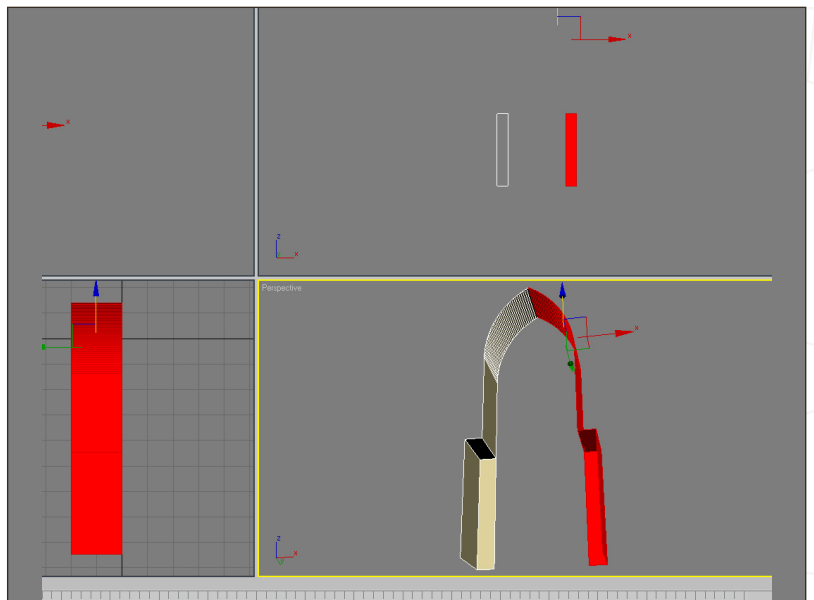
Duplicate another small pillar and position it above the big one (**Fig.62**).

Fig 62



Select and delete half of the northern arc (**Fig.63**), then mirror the remaining half and weld the vertices in the middle.

Fig 63



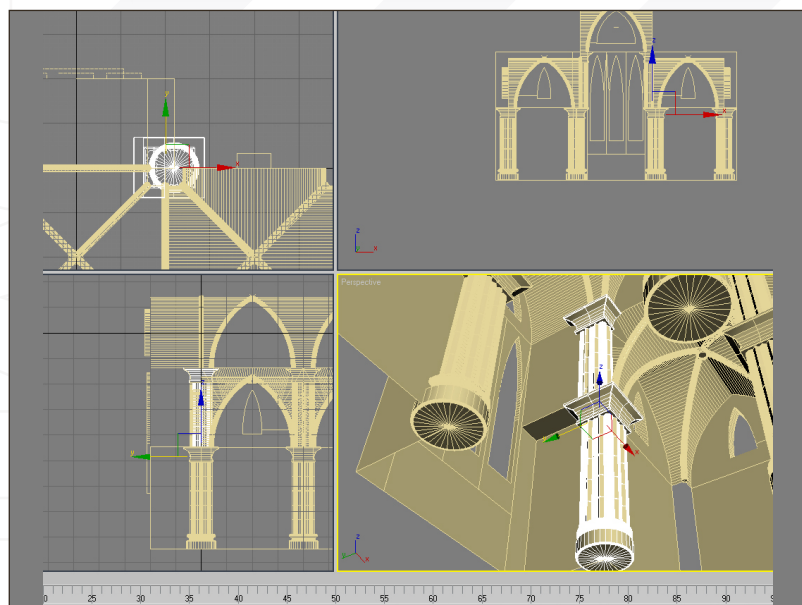


Fig 64

Duplicate the two pillars on the other side (Fig.64).

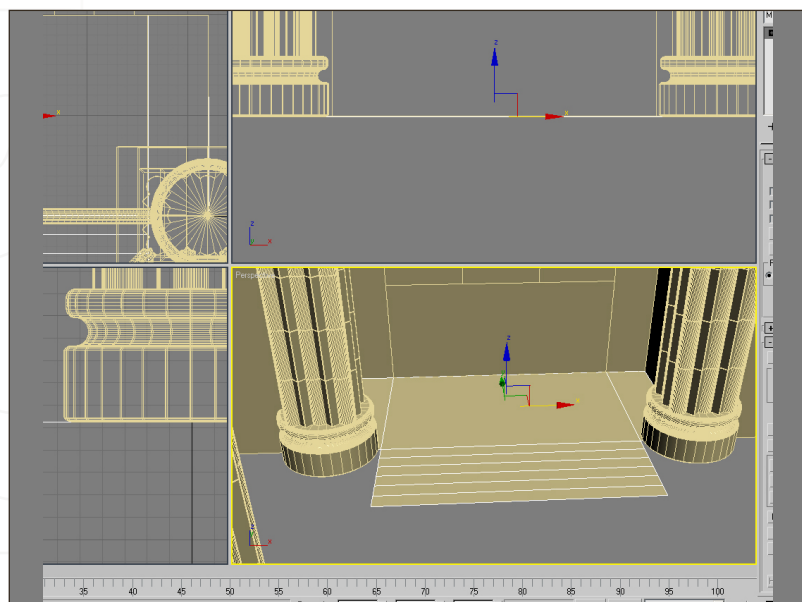


Fig 65

Create a new plane for the altar. Cut it like shown in Fig.65 and extrude the central edge six times. We'll use this mesh to create the stair steps.

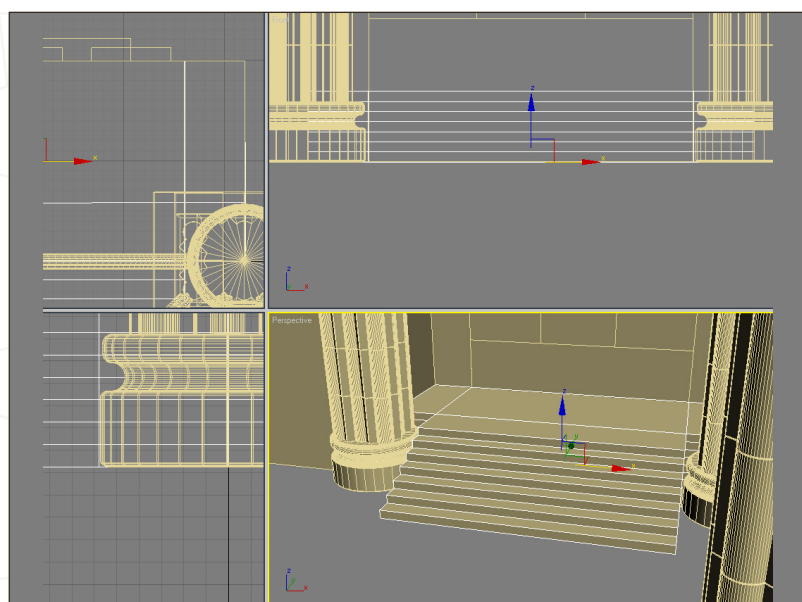
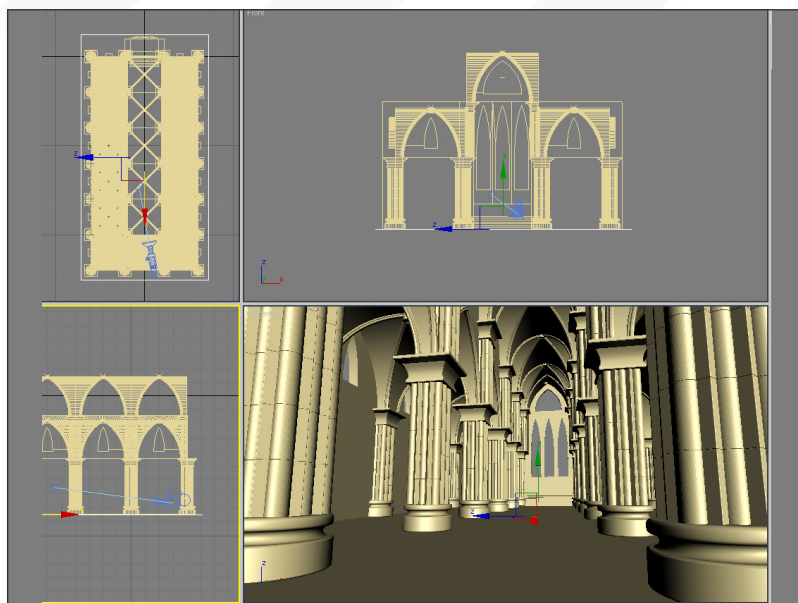


Fig 66

Extrude the steps as you can see in Fig.66.

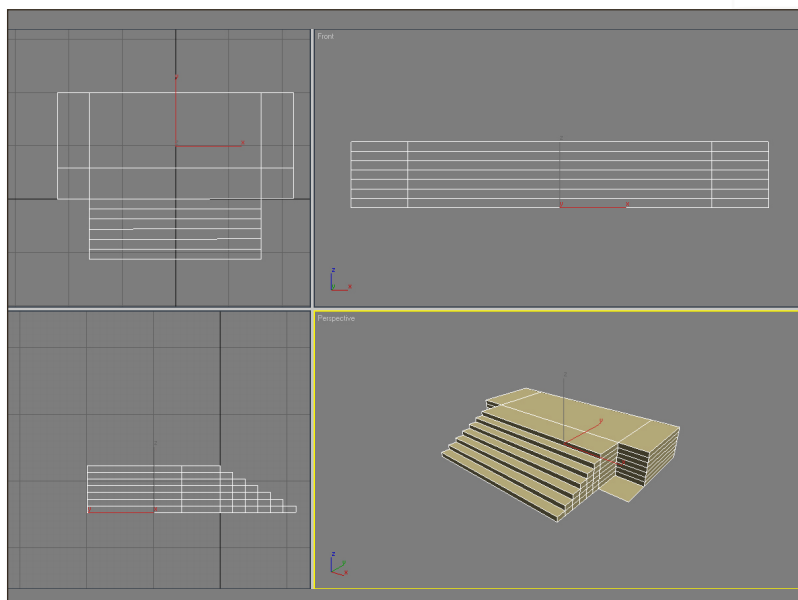
Create a big planar mesh for the floor (**Fig.67**).

Fig 67



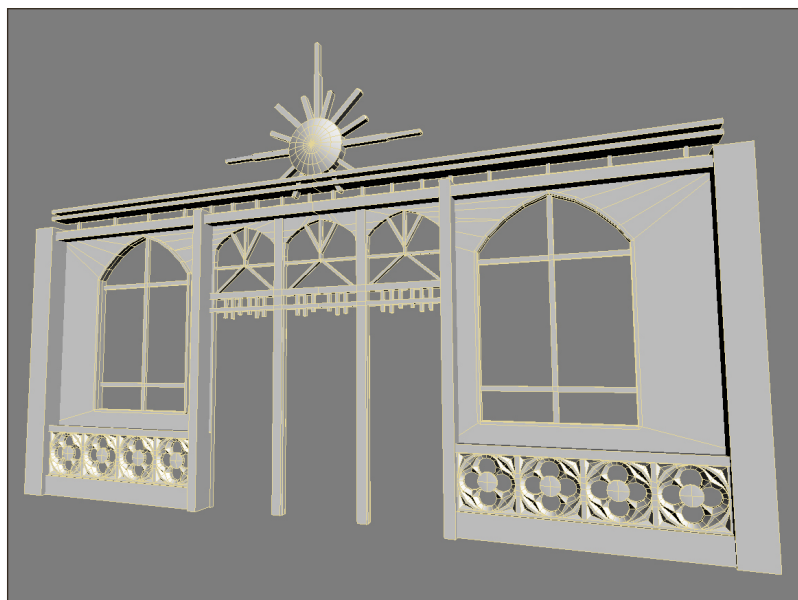
Now we can concentrate on the altar part.
Select the mesh you created earlier and hide everything else (**Fig.68**).

Fig 68



In **Fig.69** you can see the complete altar mesh.
It's really simple: most of all, it's composed by box meshes of various sizes.

Fig 69



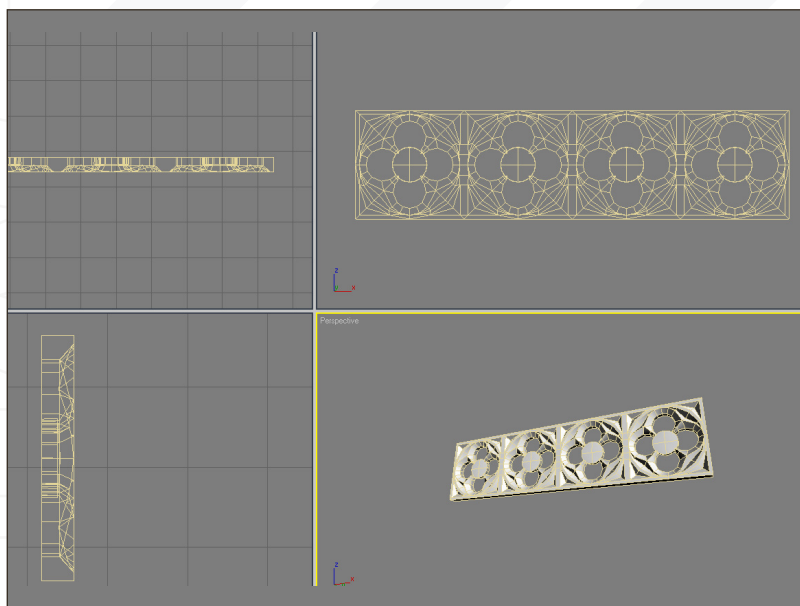


Fig 70

The circular friezes were obtained as usual with ProBoolean, subtracting an extruded shape from a box. Then the resulting mesh was cut and some inner extrusions were created (**Fig.70**).

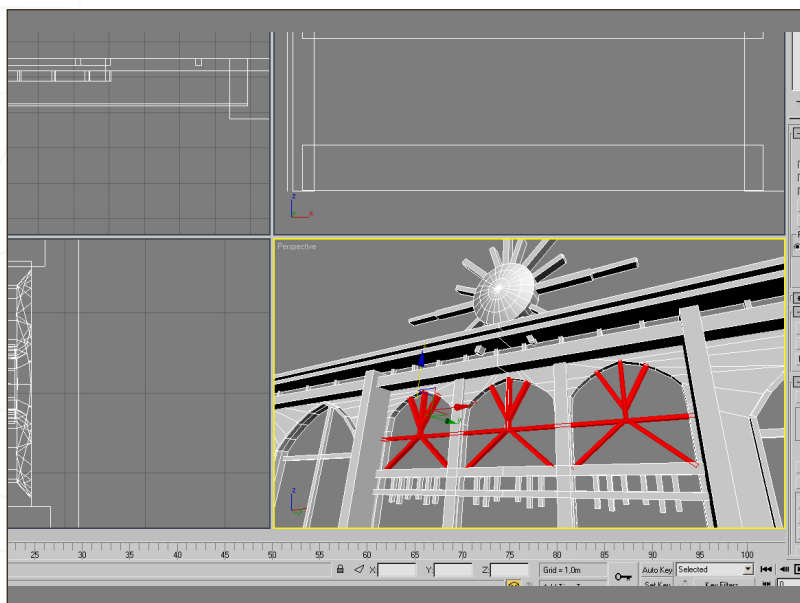


Fig 71

The meshes marked in red in **Fig.71** were made by simple splines with a thickness (you can set it in the Rendering tab of the Edit Spline modifier). Then they were converted to Editable Polygons.

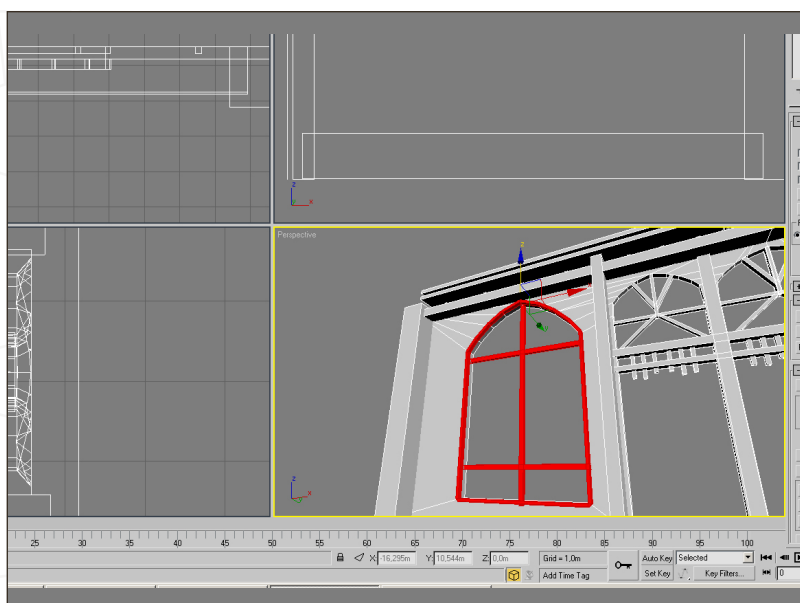
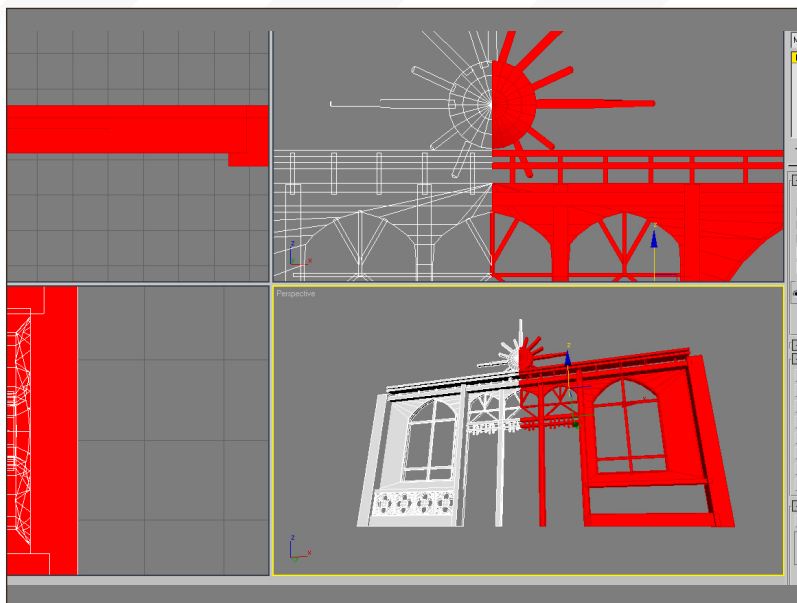


Fig 72

The same goes for the windows: they were subtracted from the box with a ProBoolean operation, and then the frame was created by renderable splines converted to Editable Polys (**Fig.72**).

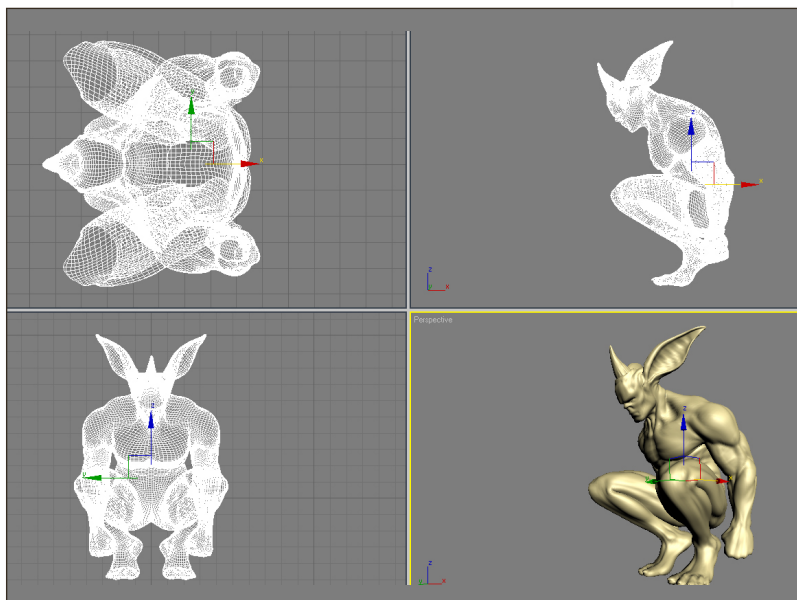
Half of the altar was created, then duplicated and mirrored for the other side (**Fig.73**).

Fig 73



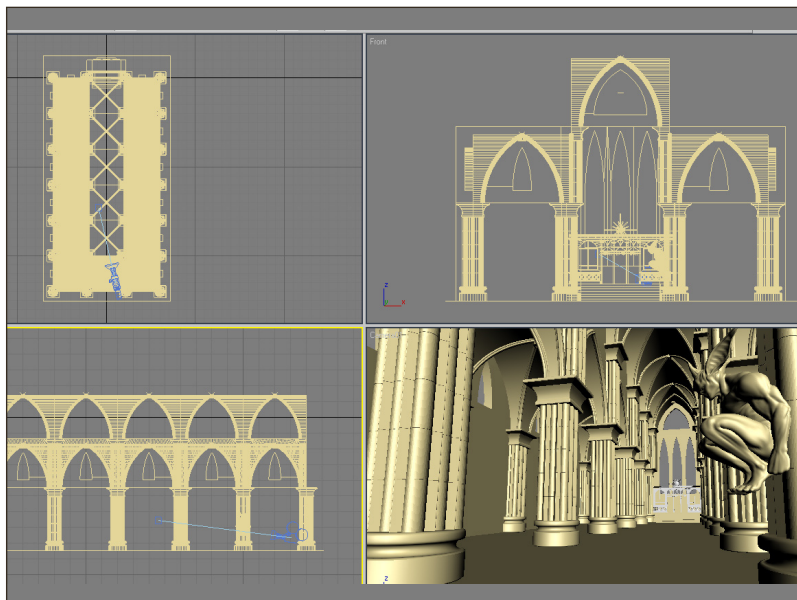
Once the altar is done, we can import the gargoyle mesh into the scene (**Fig.74**).

Fig 74



Scale it down if needed (in case the scene size is different) and position it as shown in **Fig.75**, exactly over the second pillar on the right side of the church.

Fig 75



In the next part of the tutorial we'll create the texture set for this scene.

GOTHIC CHURCH INTERIOR CREATION

PART 1: MODELLING THE INTERIOR

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Gothic Church

Interior Creation

This series will provide an overview of the principal techniques used to create a gothic interior based upon a concept painting along with a tutorial on the process of sculpting a gargoyle character in ZBrush. Key methods covering modelling, texturing, lighting and rendering will be outlined over the course of the series and culminate in a chapter on post production and how to composite numerous render passes into a final image.

The schedule is as follows:

PART 1: This tutorial will outline some of the prominent approaches to building the church interior. We will cover some of the key methods and modifiers responsible for creating the scene and core geometry.

PART 2: Will focus on the creation of the gargoyle which will be mounted on one of the columns. This tutorial will orientate around Zbrush and its powerful sculpting tools and show how a detailed model can evolve from simple ZSpheres.

PART 3: This part will detail the texturing phase of the series and deal with mapping and unwrapping key areas of geometry alongside the gargoyle.

PART 4: Lighting and rendering will be the focus in this tutorial. Light rigs and a variety of render passes will be explained in readiness for part 5; the post production.

PART 5: This the final part of the series will show how the various render passes are composited in Photoshop to create a final render. An account of some of Photoshop's tools will show how versatile this approach can be and show the value of multiple passes for post production.



Gothic Church

INTERIOR CREATION

PART 1: MODELLING THE INTERIOR

CREATED IN:

Cinema 4D

PART 1

Welcome everyone to this new series which will show us how to create the interior of a Gothic-style church.

In this first chapter we'll look at the major techniques used to model the various elements that make up the church as a whole and we will also focus our attention on the main objects that are within the church: columns, arches, windows, altar etc.

So, let's start with the columns. From the Primitive objects list, choose Cylinder, go into its properties and change the following parameters: Radius = 85 cm; Height = 55 cm; Rotation Segments = 8. Make the cylinder object editable, then select all vertexes and use the Optimize tool to weld all the points. Now select the top edges loop and apply a Bevel (Inner Offset = 4 cm) as shown in (Fig.01). This will be the base of the column.

Now we will create a second base for the column. I'm going to build just a quarter of the base and then I will mirror this part by using the Symmetry option. So, select Primitive Polygon from the Objects menu and subdivide the face (Subdivision = 1). Delete three polygons less the selected one, as seen at the top left of figure. Cut the polygon by using the Knife tool and then position the new vertexes as shown at the top right of figure. (Make sufficient cuts in order to obtain the shape as shown at the top right of figure.) Apply a symmetry to the polygon object; the Mirror Plane is ZY, check it in the symmetry properties. Apply another symmetry (Mirror Plane = XY) to the symmetry object as seen at the bottom of figure (Fig.02)

Fig 01

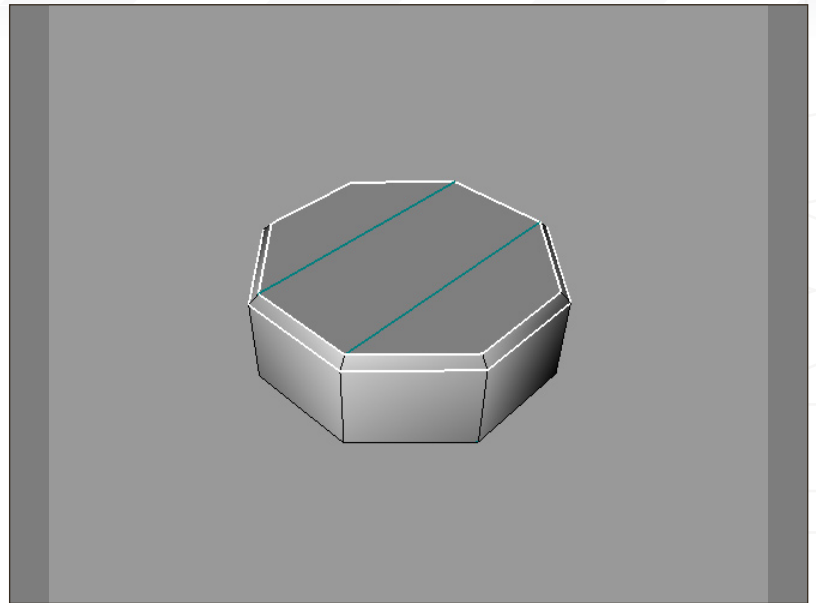


Fig 02

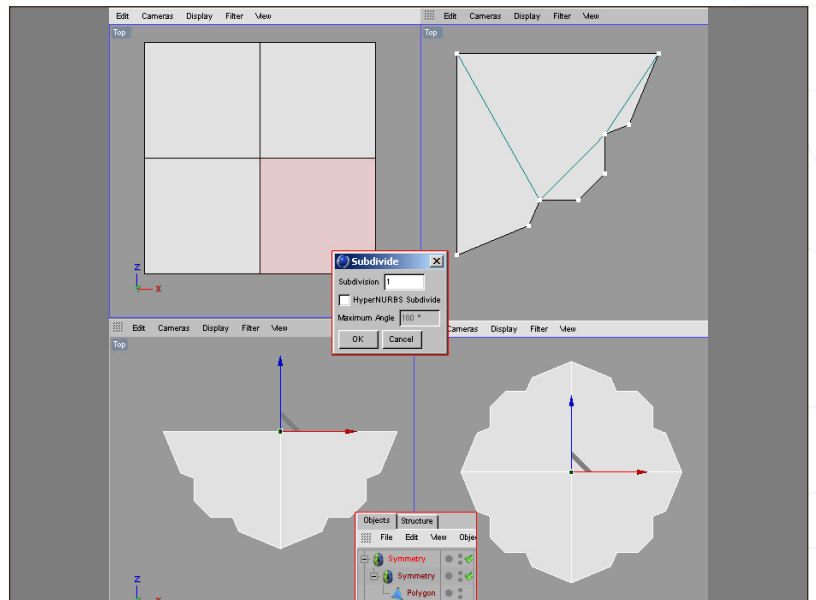
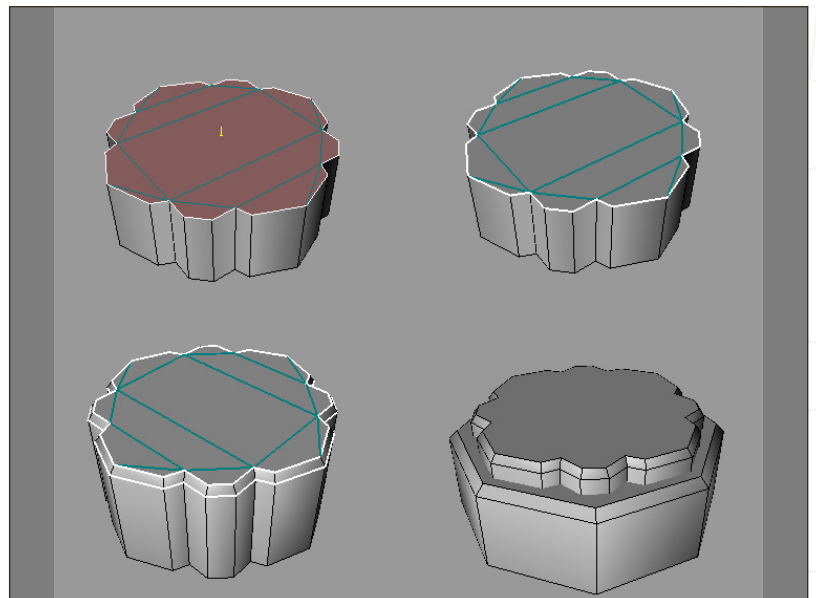


Fig 03



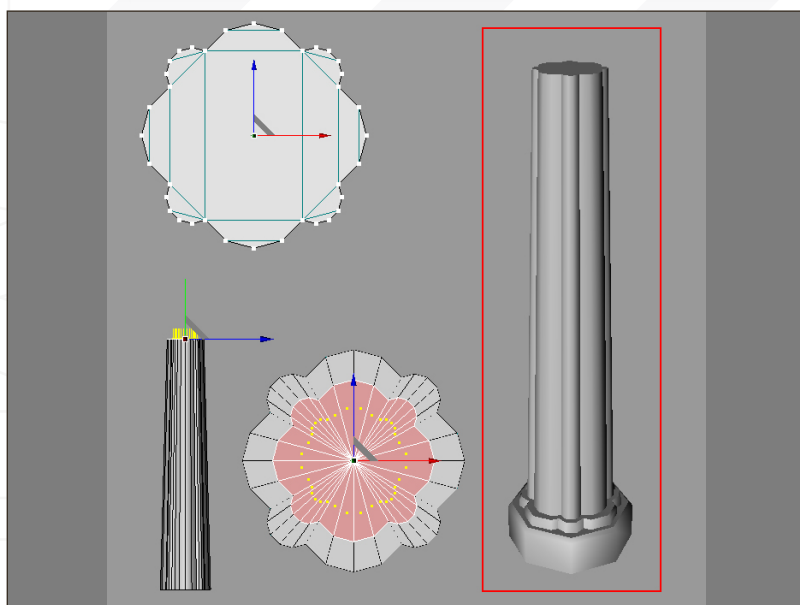


Fig 04

Freeze the object by making the symmetry object editable, then make an extrusion of the object polygon. Select the top edges loop and apply a Bevel as we did for the first base (**Fig.03**).

Now use the same process to create the column. The shape of the column will be more subdivided. At the right of figure you can see the three parts of the column (**Fig.04**).

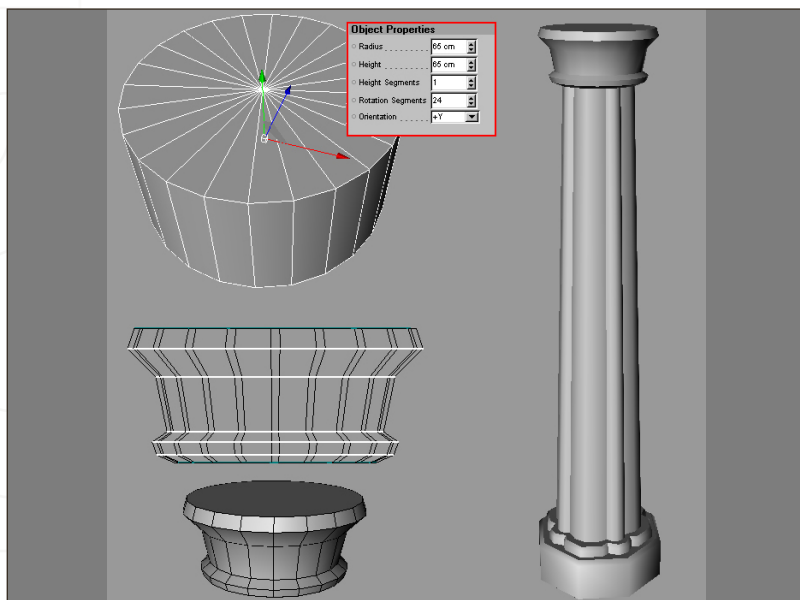


Fig 05

Let's see now how to make the capital of the column. Create a cylinder with Radius Height of 65 cm and 24 Rotation Segments. Add five cuts and scale the edges loop (**Fig.05**). At the right of figure you can see the complete column.

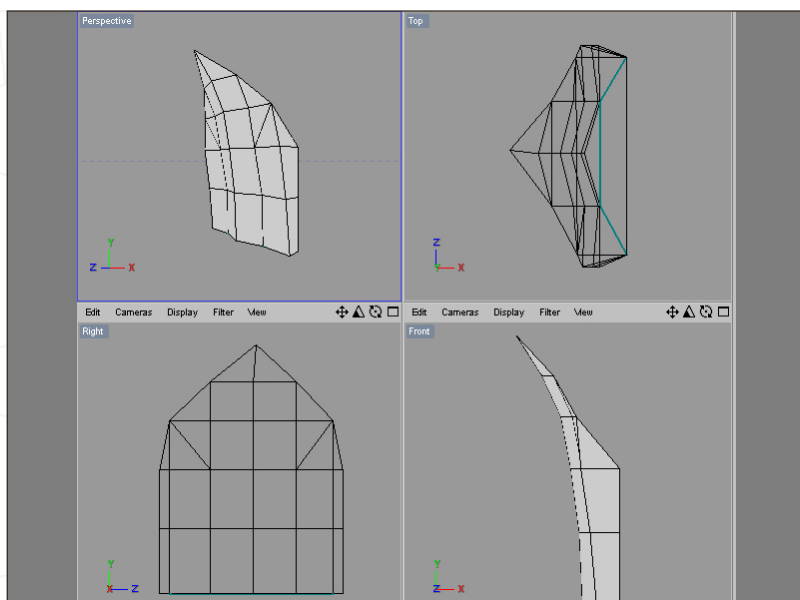
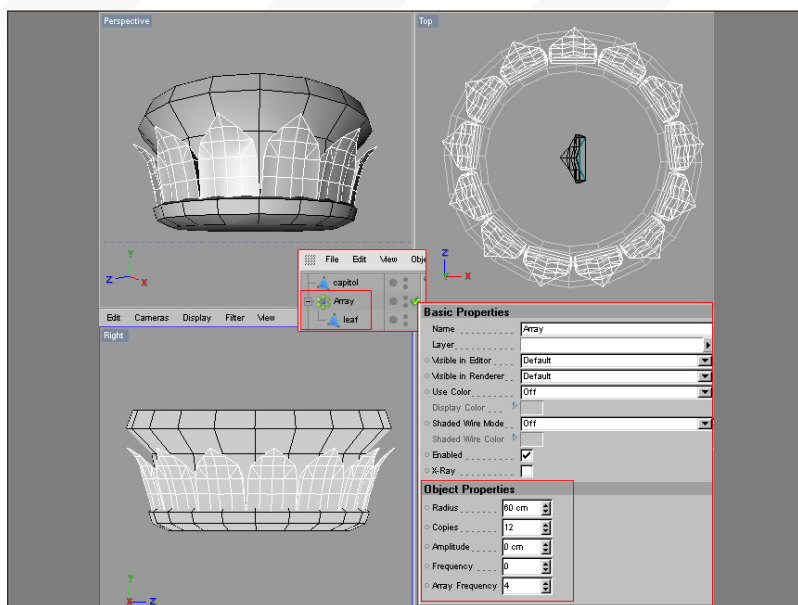


Fig 06

Now we may add some ornaments on the capital of the column. I decided to create leaves that will be placed on the circumference of the capital. To do this, just model one leaf and then duplicate it by using a cloning object. So, let's see how to do it in detail. First of all, create the leaf by starting with a cube. (**Fig.06**).

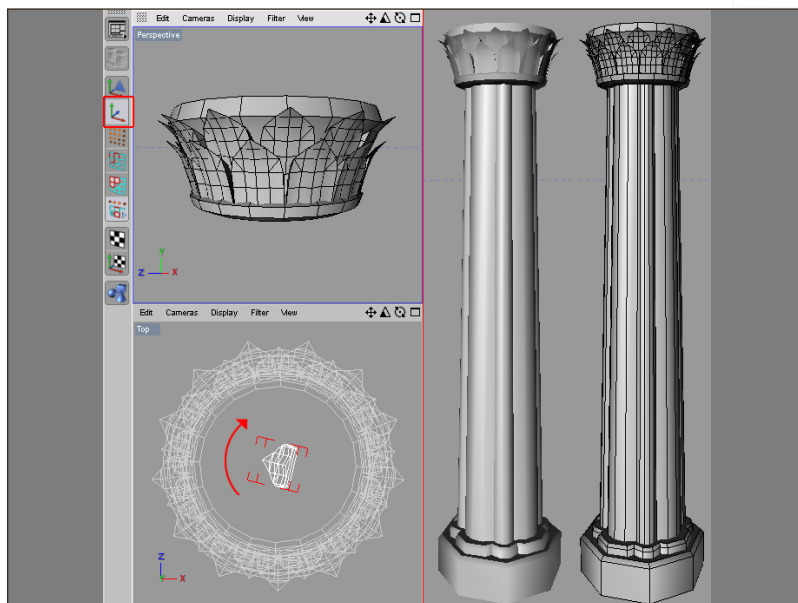
From the Objects menu, go into Modelling and choose the object "Array". Drag and drop the leaf object into the array. Go in the properties of the array and change the parameters so that the leaves are duplicated across the entire circumference of the capital, as shown in **Fig.07**.

Fig 07



As you can see, the leaf we just created has been cloned on the circumference. In the properties of the array object you can modify Radius, which controls the size of the circumference, and Copies, which controls the number of copies cloned. To create a second series of leaves, make a copy of the array object and move it above. Rotate the leaf of the second set by using the Object Axis Tool to fit it to the capital, as shown in **Fig.08**. At the left of figure you can see the column completed.

Fig 08



Gothic churches usually have windows on the side walls and a large window behind the altar, and so these are the next objects that we are going to model, starting with the small windows that will be placed on the side walls. I will explain in detail how to create the small window using a different method of modelling and in fact, this time we will be using the Spline Object option. Suppose you want to create a window like the one shown in **Fig.09**; as you can see, we can create one half of the window and then use symmetry to get the other half. Once built, we can also create the great rose window by duplicating the smaller one.

Fig 09



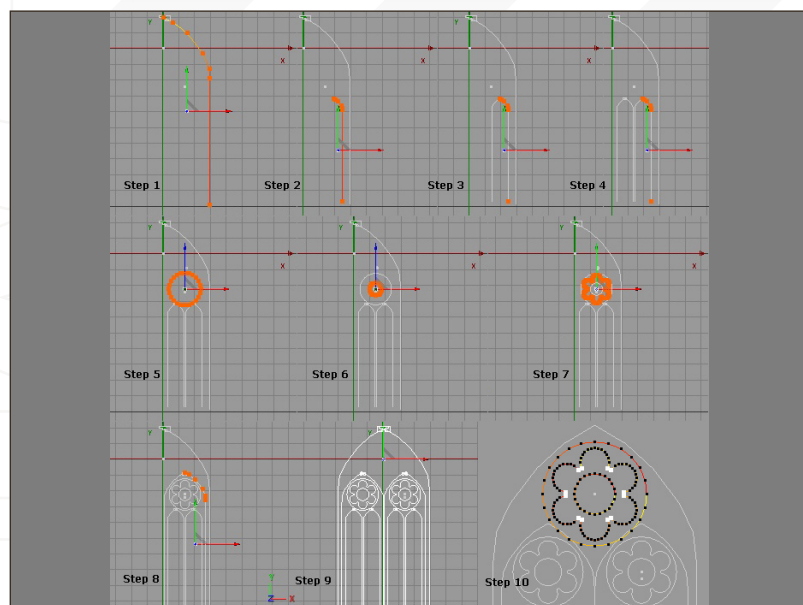


Fig 10

We want to start by creating one half of the great arch, so choose Objects > Create Spline > B-Spline. Draw the spline in the front view, as you can see in the Step 1 of **Fig.10**. Create another B-Spline to build the small arch (Step 2); create just one half, then use the symmetry to get the second half of the small arch, as shown in Step 3. Freeze the symmetry, duplicate the small arch and move it (Step 4). Create a Circle Spline by selecting it from the Spline Primitive menu (Step 5) and create another one, as shown in Step 6. Create the spline shown in Step 7. Now create one half of the arch (Step 8), then use symmetry. We've got one half of the window so far - now use the symmetry to complete the window as you can see in Step 9. Finally, add the great rose windows by duplicating the smaller one and placing it to the centre, as shown in Step 10 (**Fig.10**).

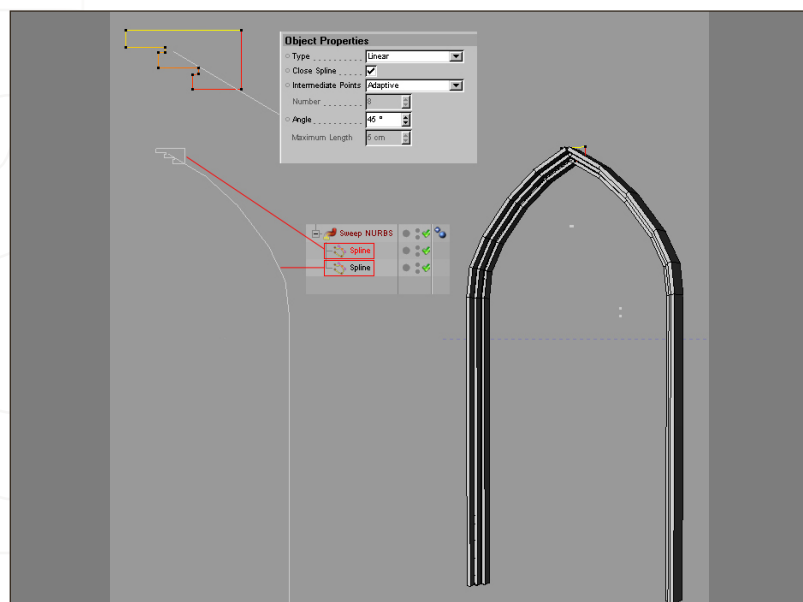


Fig 11

Now create a Linear Spline which has the shape shown at the top left of **Fig.11**. We are going to extrude this shape along the spline. To do this extrusion, we need to use the Sweep NURBS object, which you can find by going to Objects > NURBS > Sweep NURBS. Drag and drop the two spline objects into the Sweep NURBS (**Fig.11**).

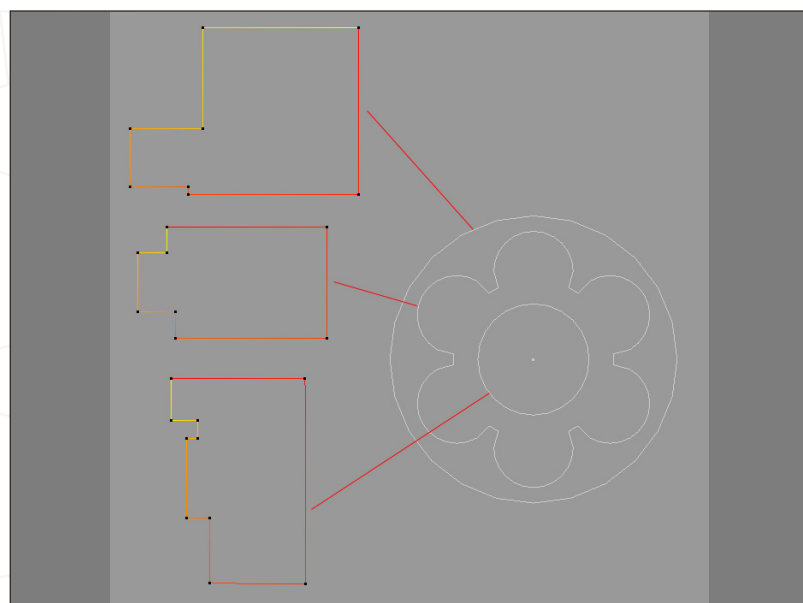
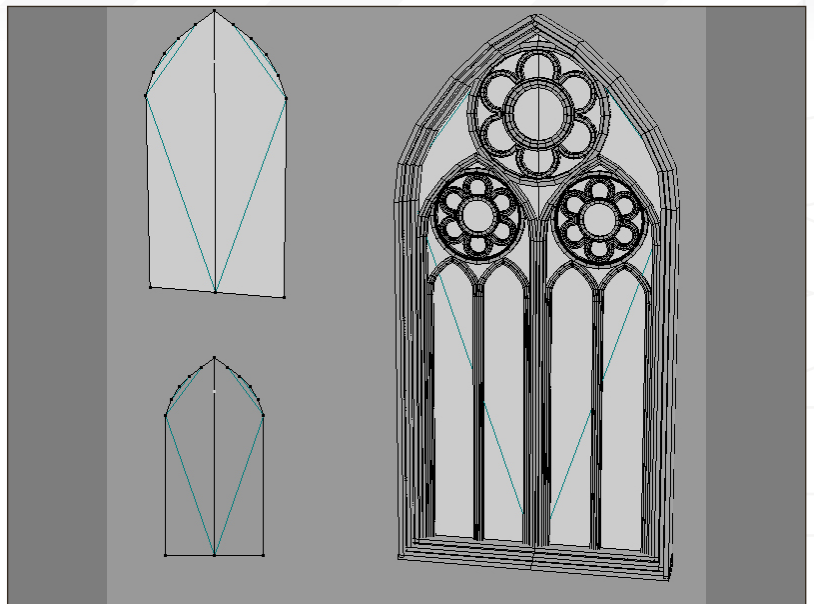


Fig 12

Use the same process to complete the window. For the rose window, you may change the shape of the section of the frame that will be extruded along the spline. For example, I used three different shapes (**Fig.12**).

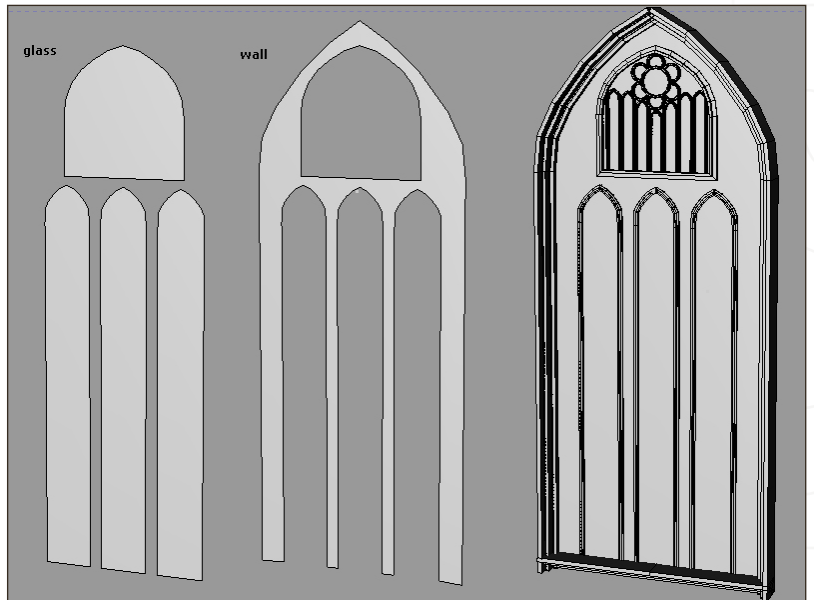
The last step to finish the window is to add an object that will represent the glass. So create a polygon like the one shown in **Fig.13**.

Fig 13



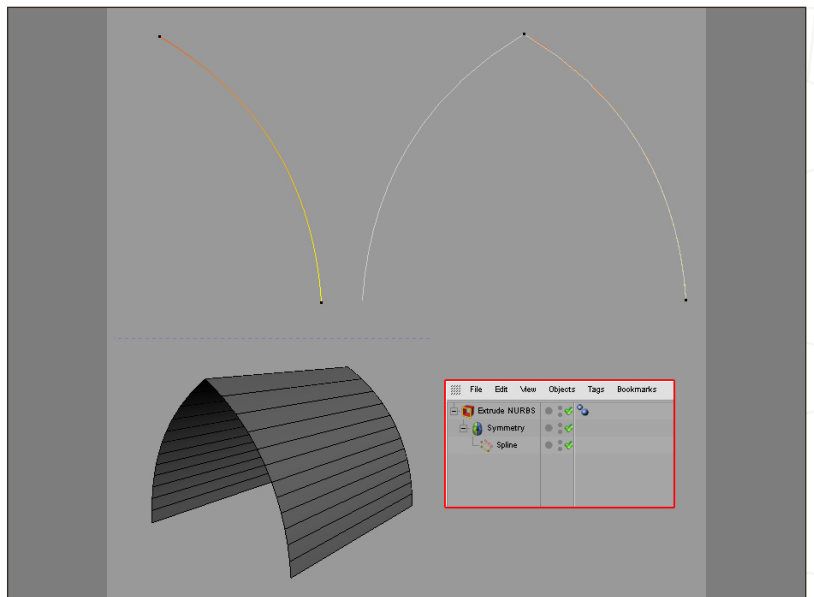
The large window behind the altar is similar to the small window that we just modelled. It was created using the same procedure (**Fig.14**).

Fig 14



Now let's look at how to create the ceiling. A characteristic of Gothic churches is the vaulted ceiling formed by arches ogive. So create a spline, as shown on the top left of **Fig.15**. Use the symmetry as seen on the top right. Use the Extrude NURBS object (Objects > NURBS > Extrude NURBS) to create a mesh from the arc spline (**Fig.15**).

Fig 15



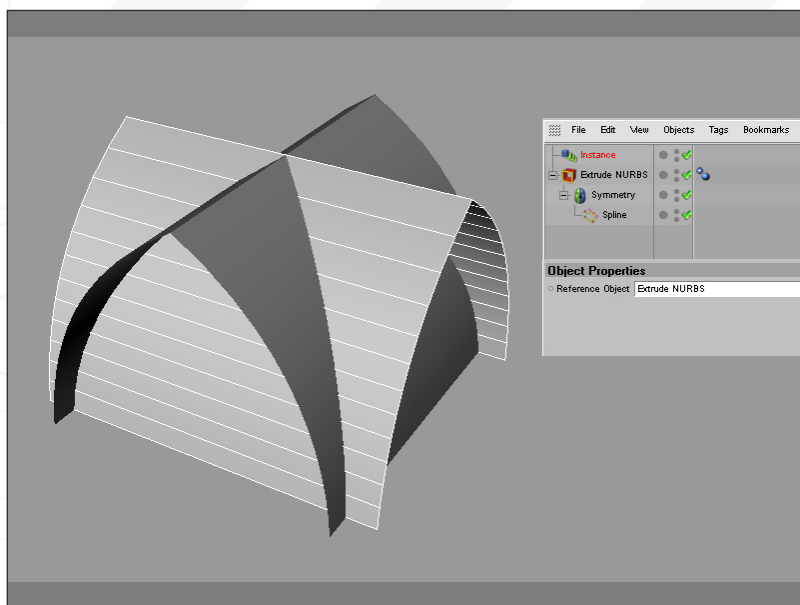


Fig 16

Select the Extrude NURBS object and create an Instance (Objects > Modelling > Instance). Rotate the Instance object (**Fig.16**).

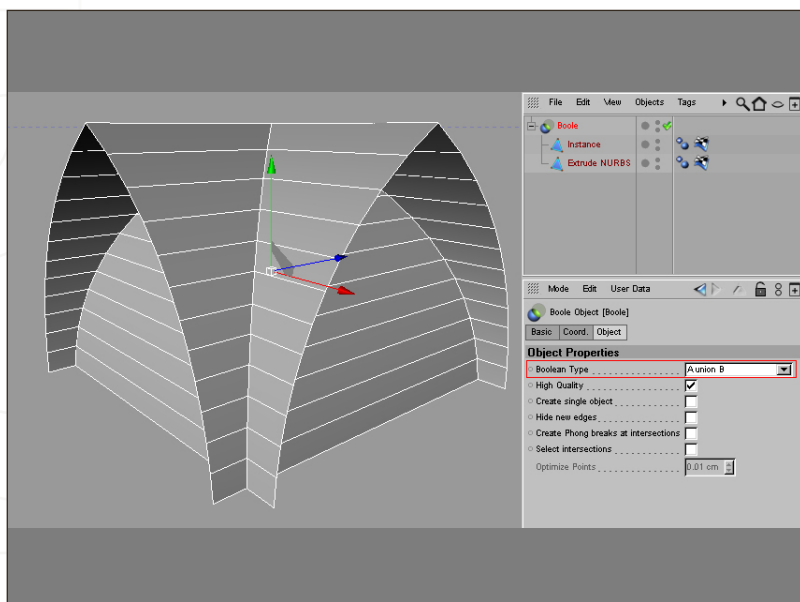


Fig 17

Freeze the Extrude NURBS object and the Instance object. Use the Boole operator (which can be found in Objects > Modeling > Boole). In the Boole properties, define the type of Boolean - it should be "A union B" (**Fig.17**).

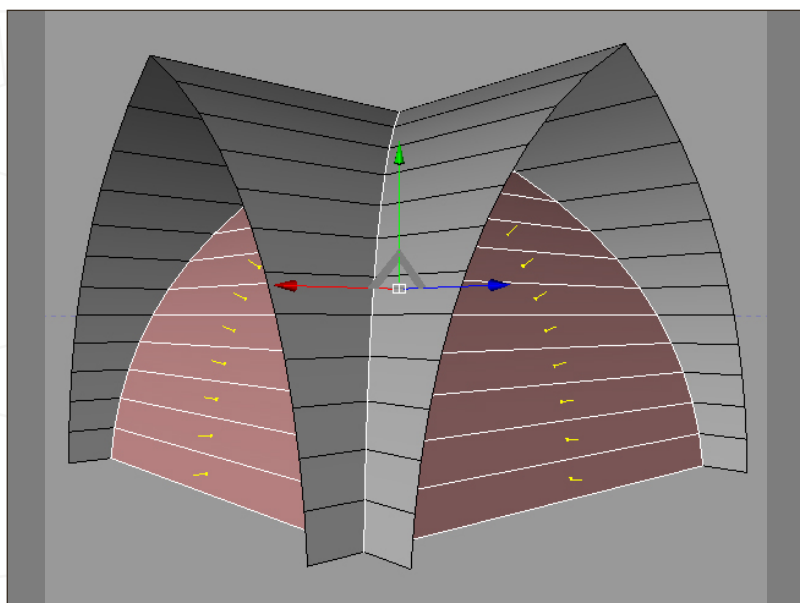
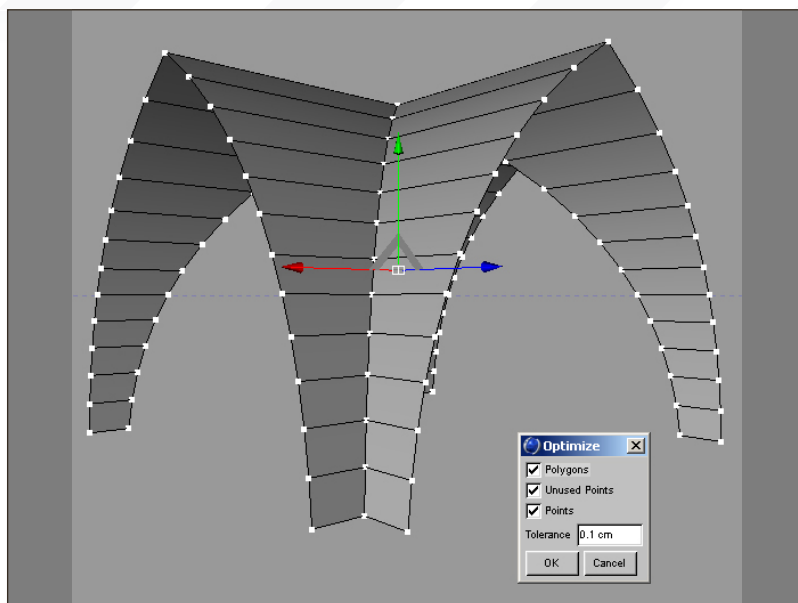


Fig 18

Make the Boole object an editable mesh, then connect the Instance object with the Extrude NURBS object. This will create a new object, that you may rename. The next step is to clean up the unnecessary polygons, so select the polygons and delete them (**Fig.18**).

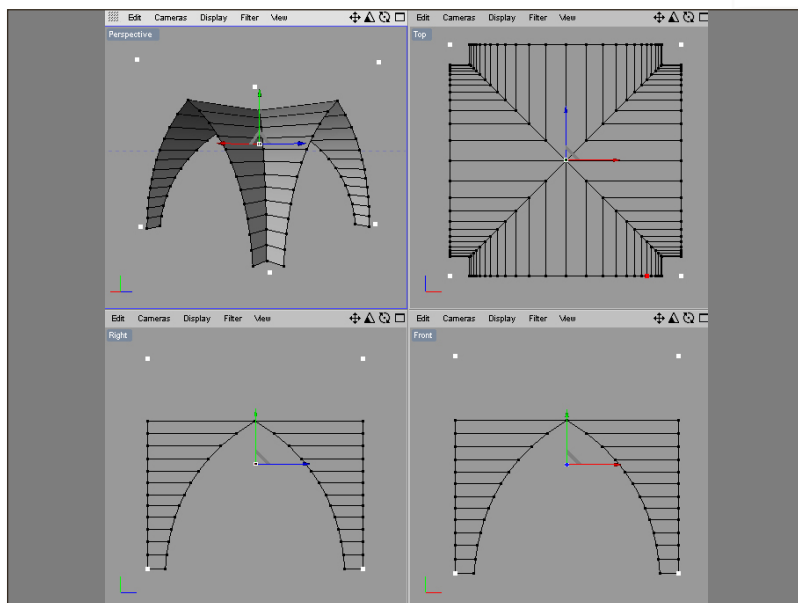
Now select all vertexes and use the Optimize tool to optimise the mesh (**Fig.19**).

Fig 19



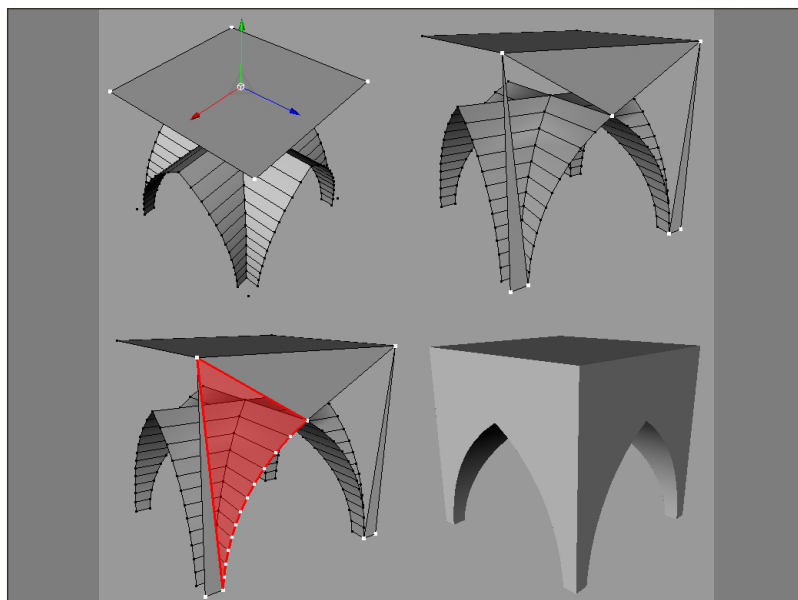
Add eight points, four on the top and four on the base. Select the Add Point tool from the Structure menu, or from the right mouse menu. To adding the point, you must hold the Ctrl key down on your keyboard (**Fig.20**).

Fig 20



Create the polygon at the top of the object by using the Create Polygon tool, as seen at the top left of **Fig.21**. Still using the Create Polygon tool, create the polygons as shown at the top right of the image. After, use the Close Polygon Hole tool to create the polygon shown at the bottom left. Keep creating polygons until you get the mesh shown at the bottom right. Last, check if the Normals are aligned.

Fig 21



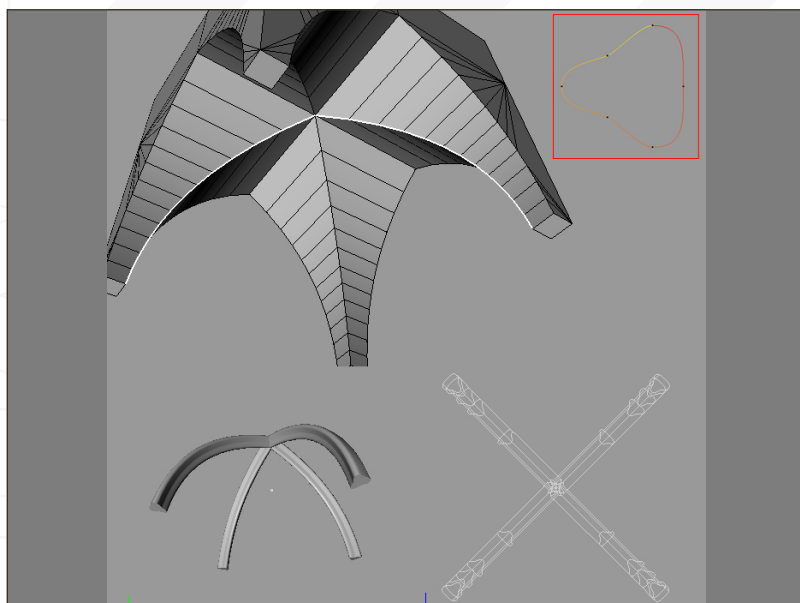


Fig 22

Select the edges and transform them into splines (Structure > Edit Spline > Edge to Spline). Now create a new spline and feel free to choose the shape - I used the shape shown at the top right (highlighted in red). Make an extrusion of this shape along the spline. Duplicate the Sweep NURBS object and rotate it (Fig.22).

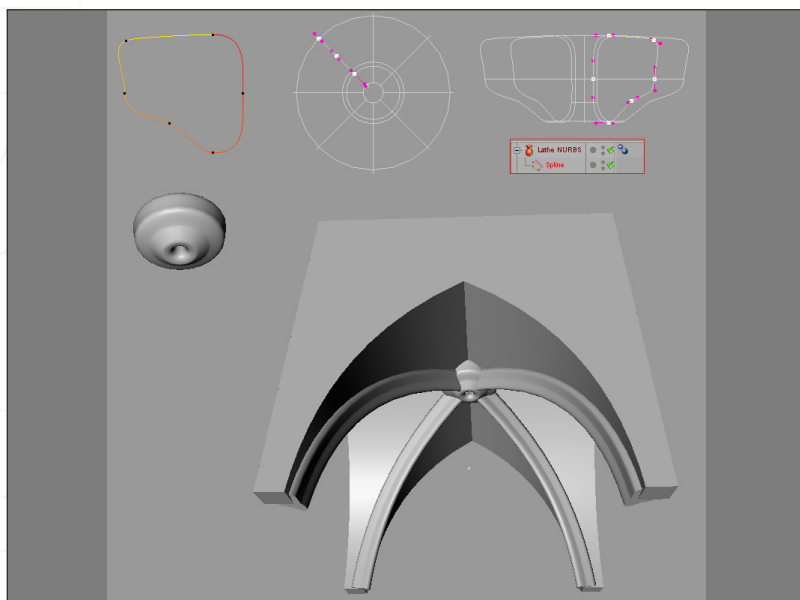


Fig 23

We can also add an ornament to the centre of the vaulted ceiling. Create a new spline and drag and drop this spline into a Lathe NURBS object (which can be found in the NURBS list) as seen in Fig.23.

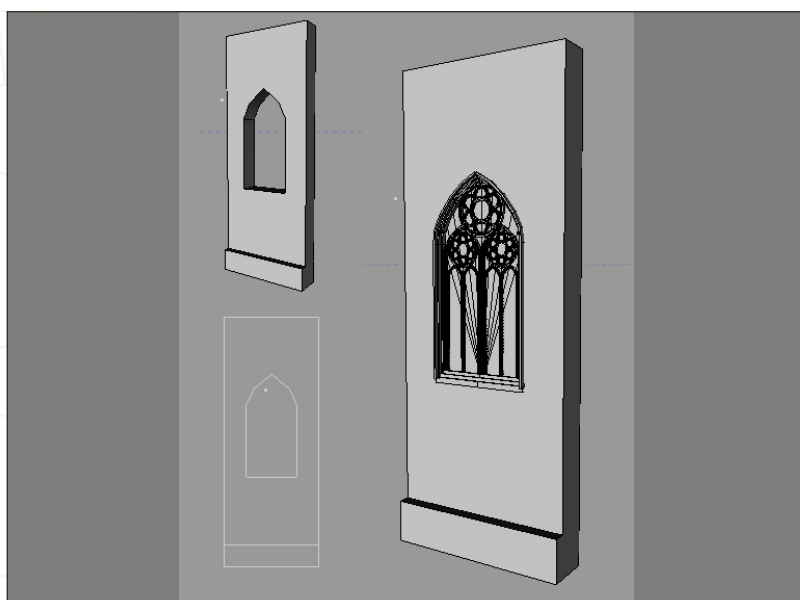
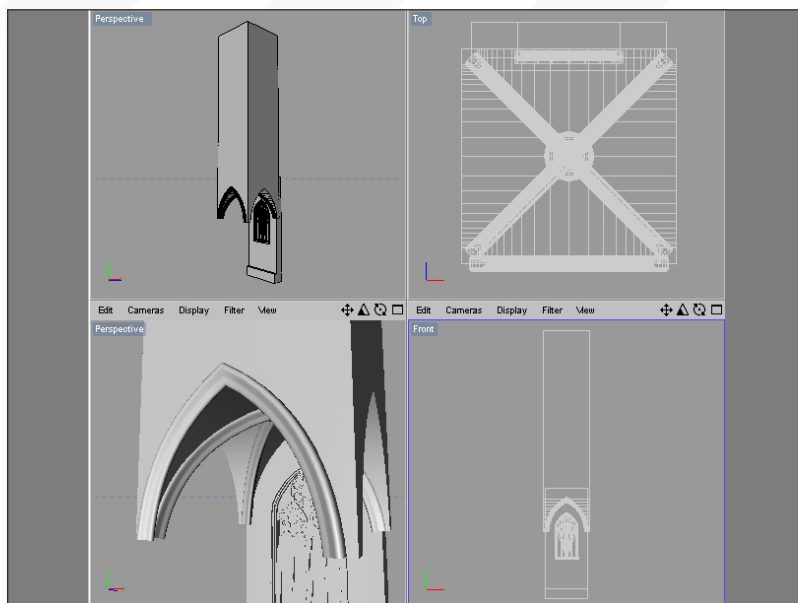


Fig 24

Now we have enough elements to create blocks that can be cloned and make up our church. Let's start by creating a part of the wall. Make the hole where the window will be placed. Connect all the parts that compose the window, minus the object that represents the glass. Position the window onto the wall (Fig.24).

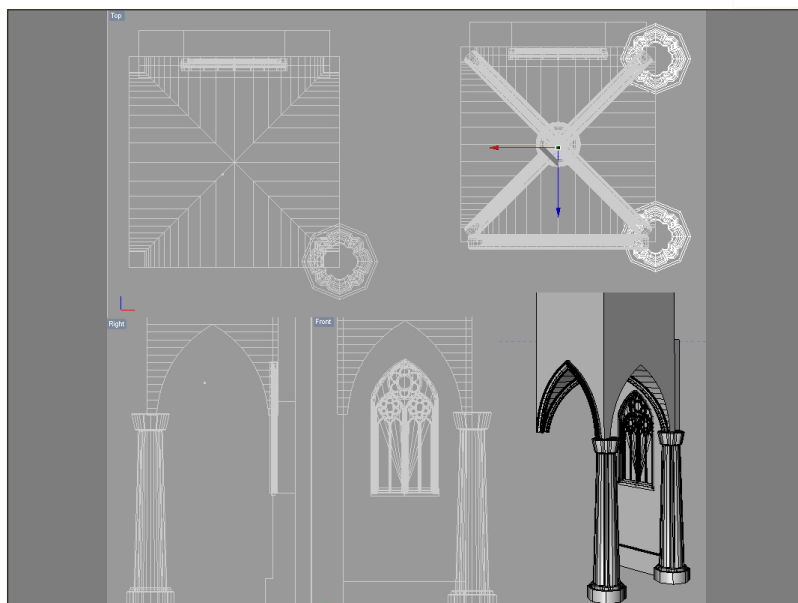
Position the vaulted ceiling on the top of the wall and, if it's necessary, fit the wall to the ceiling. I have also added another frame on the arc, as you can see in the bottom left of **Fig.25**. Modify the ceiling by moving the upper face at the top, as shown in the bottom right of the image.

Fig 25



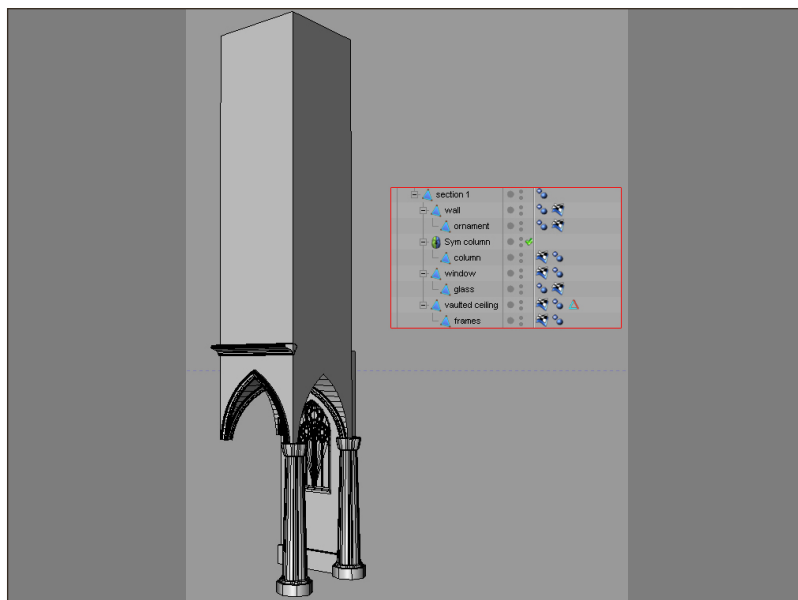
Insert the column into the scene, placing it on the corner of the ceiling. Put the column into a symmetry object (Mirror Plane = XY) (**Fig.26**).

Fig 26



Thus we have the blocks necessary for the building of the aisles. The hierarchy of the objects should be as shown in **Fig.27**, where "Section 1" is a Null object that contains the wall, the column with symmetry, the window and the vaulted ceiling. As you can see, I also added another ornament on the wall.

Fig 27



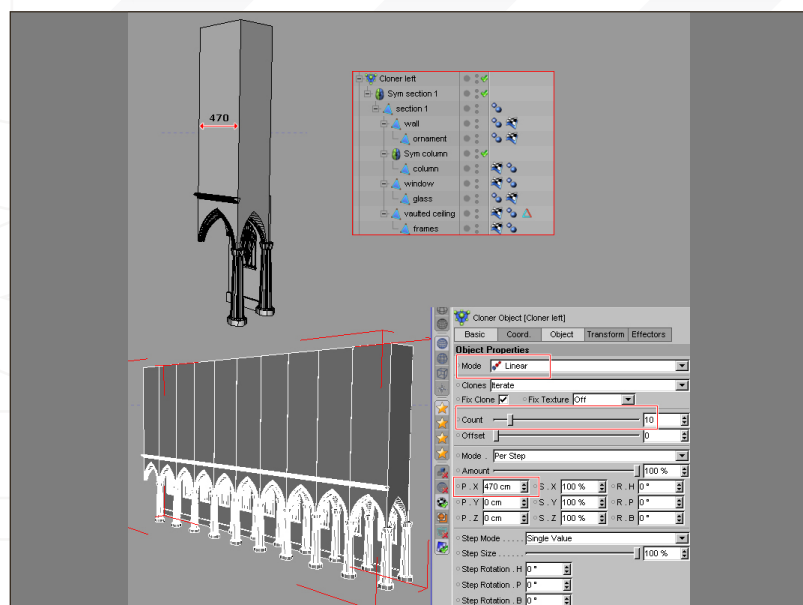


Fig 28

Now we can apply the symmetry to "Section 1". The next step is to clone this block. We may use the Mograph module which has been included in Cinema4D from the 9.6 version, or we may clone the block by using the Instance as we did before. Suppose that we want to use Mograph; select the Cloner Object tool from the MoGraph list. Drag the Cloner into the "Sym section 1" object as shown in the highlighted window of **Fig.28**. In the Cloner Object properties, check that Mode is set on Linear and then set the number of clones by increasing the count value. We want the object to be cloned along the X axis, so set the X position as seen in the image. As you can see, I've entered "470 cm" as that corresponds with the width (X size) of the vaulted ceiling (**Fig.28**).

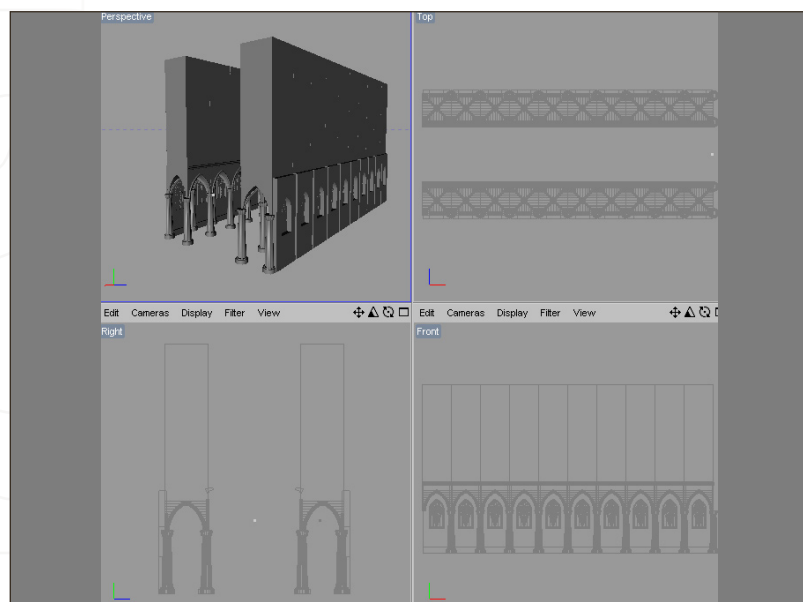


Fig 29

In this way we have built the two aisles. This modelling process is very useful because it will allow us to save time in the texturing phase (**Fig.29**).

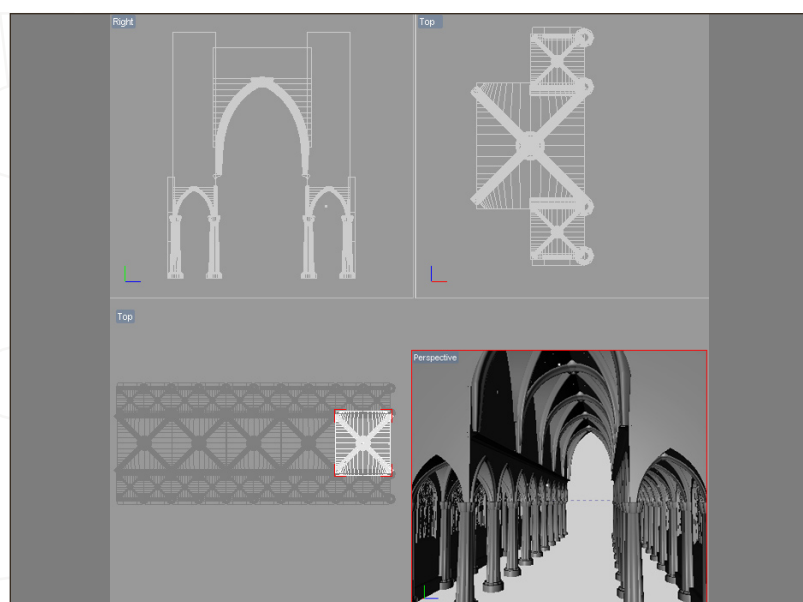
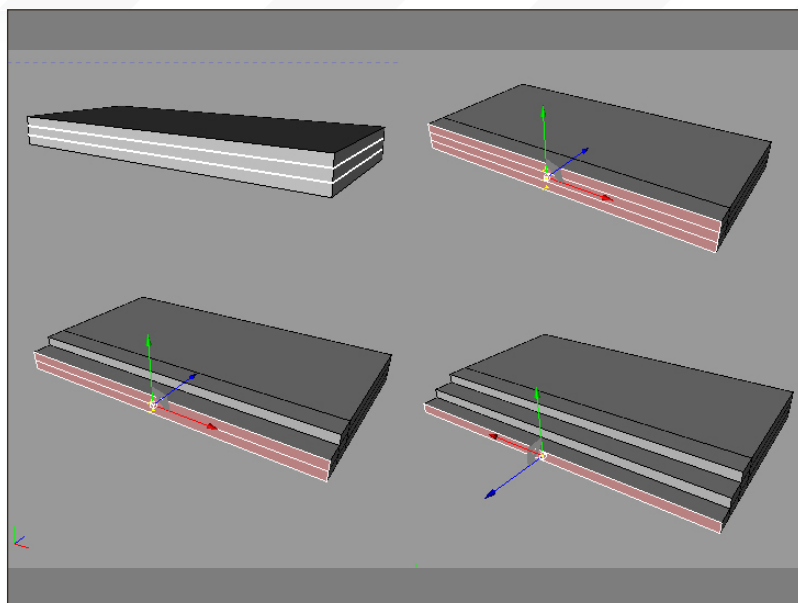


Fig 30

Now let's build the main nave. Make a copy of the vaulted ceiling object, then enlarge it and position it between the two aisles. Duplicate the big vaulted ceiling by using the Cloner Object or the Instance tool (**Fig.30**).

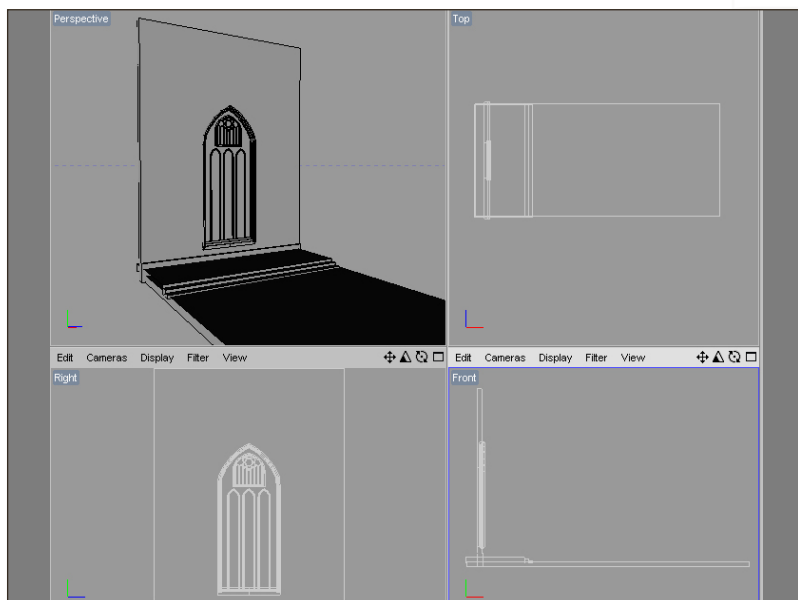
Create the floor by using a cube. Create the stairs, as shown in **Fig.31**. Start with a cube and cut it as shown in the top left of the image. Use the Extrude tool to create the steps.

Fig 31



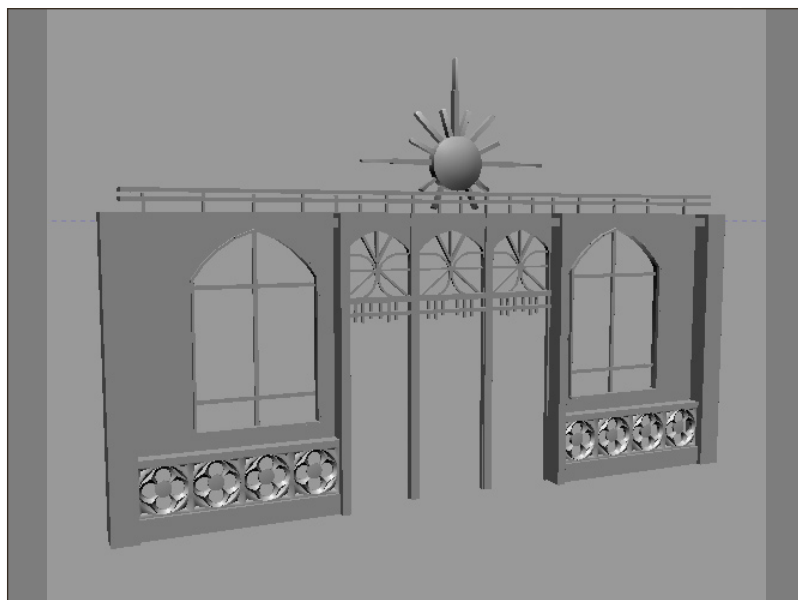
Now create a big wall. Make a hole to insert the large window, as we did for the small window and place the large window in the hole (**Fig.32**).

Fig 32



The next step is to build the altar. In **Fig.33** you can see the complete altar mesh.

Fig 33



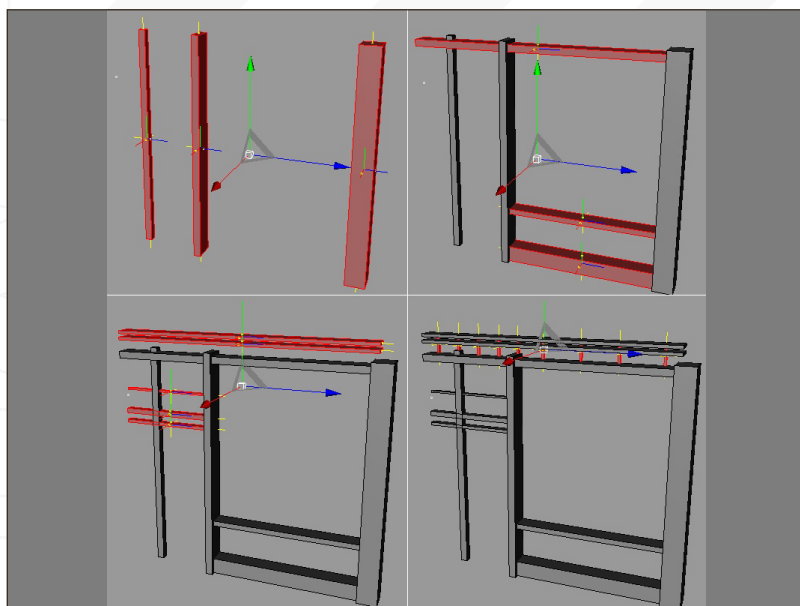


Fig 34

Let's look at how to build the altar in details. Use a primitive cube to create the stakes, then add three other stakes and continue to add details (Fig.34).

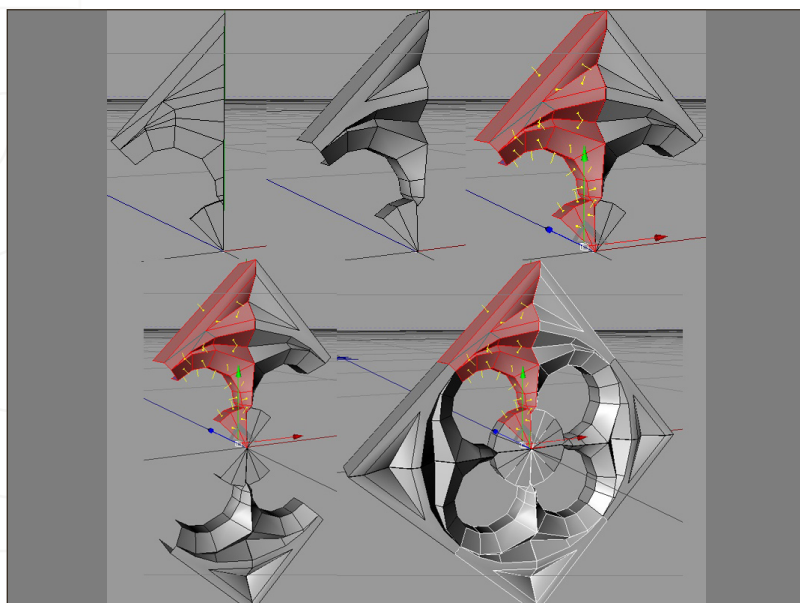


Fig 35

Create some ornaments to insert into the altar part. Make a mesh by using a polygon, as seen in Fig.35. Move the vertexes in order to obtain the mesh as seen at the top of the image and apply the symmetry to the object (top right). Then insert the symmetry into another symmetry object (bottom left). Make the mesh editable, then duplicate it by using the Instance tool. Rotate the clone as shown in the bottom right.

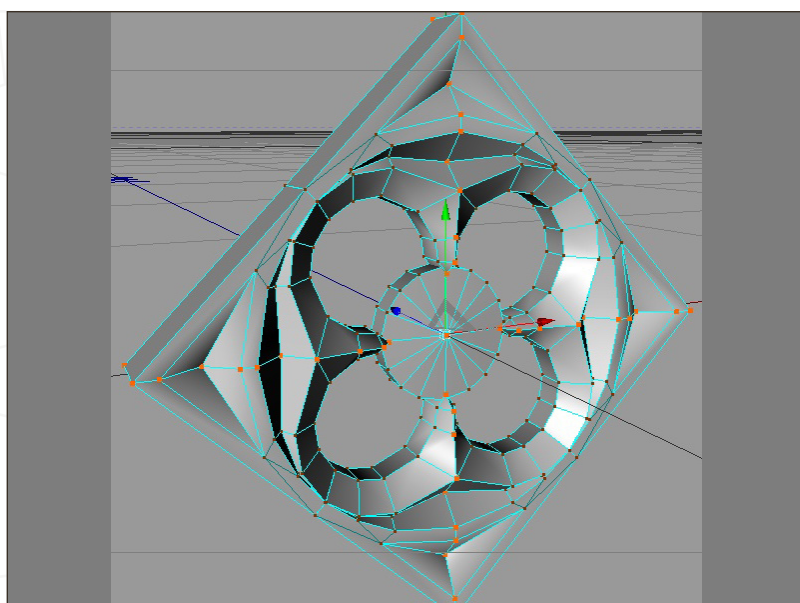
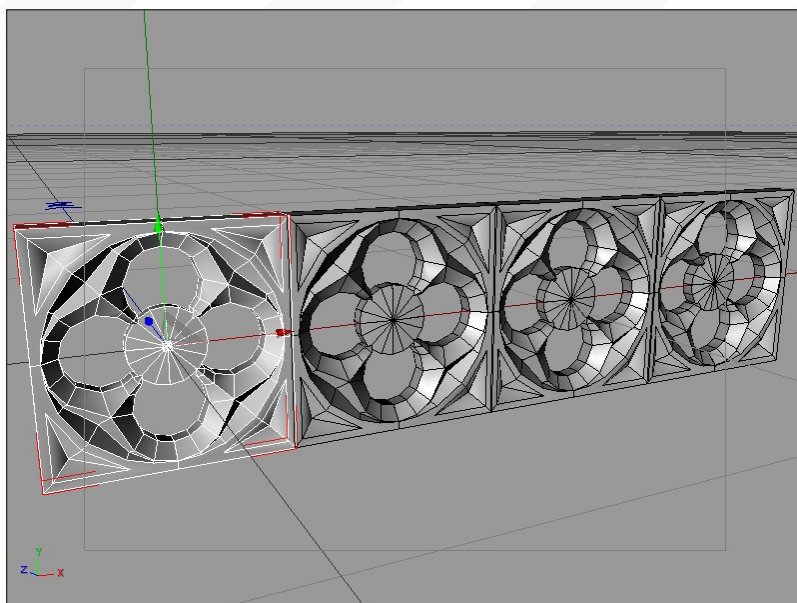


Fig 36

Freeze the mesh and weld the marked points (Fig.36).

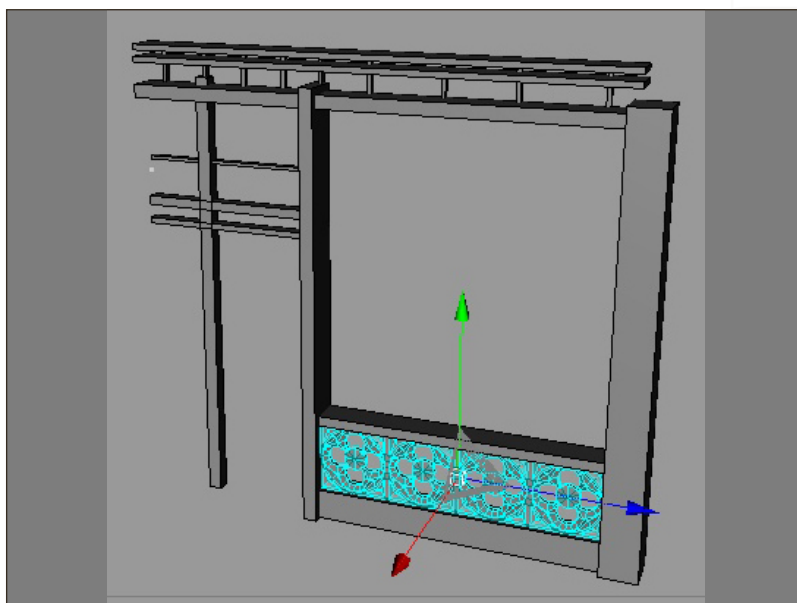
Rotate the object, then use the Cloner Object tool to duplicate the ornament (**Fig.37**).

Fig 37



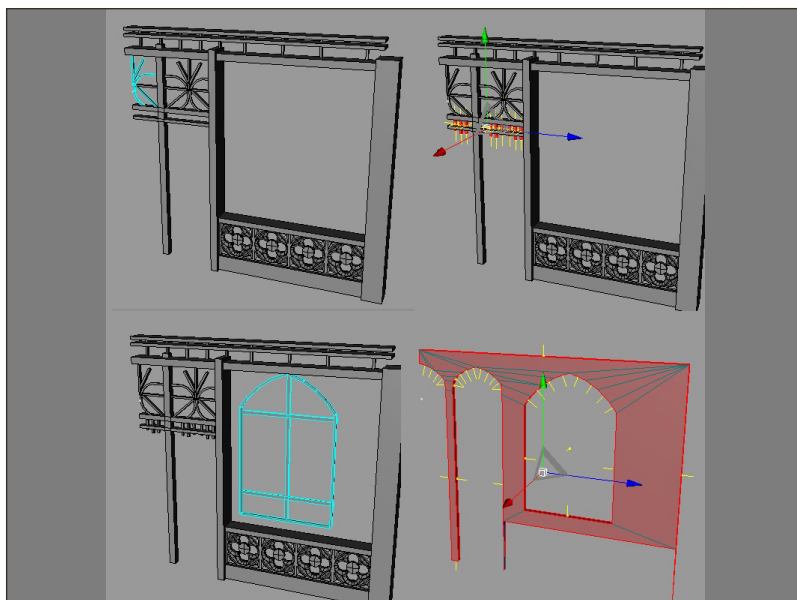
Place the ornaments as shown in **Fig.38**.

Fig 38



Continue to add details and create the wall (**Fig.39**).

Fig 39



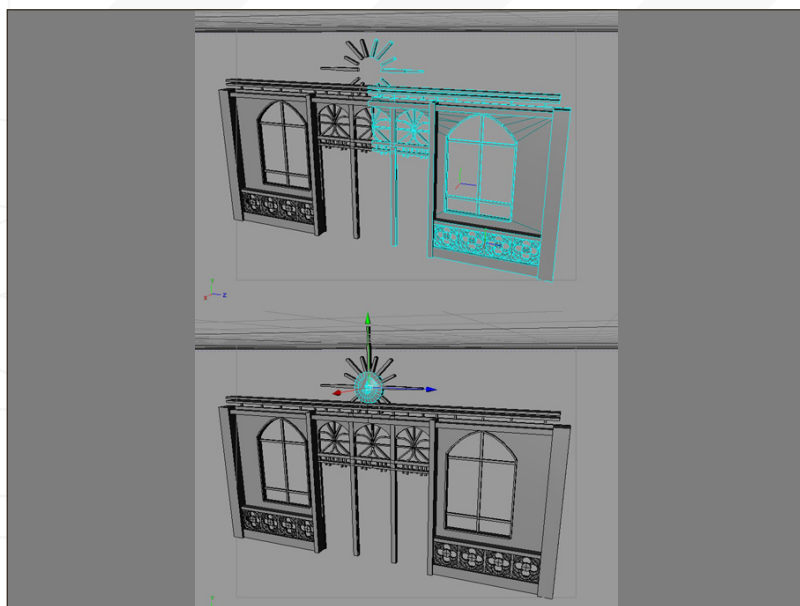


Fig 40

Make all the meshes on the altar editable, then connect all the objects we used to build the altar. Apply the symmetry and finally, add the detail on the top (**Fig.40**).

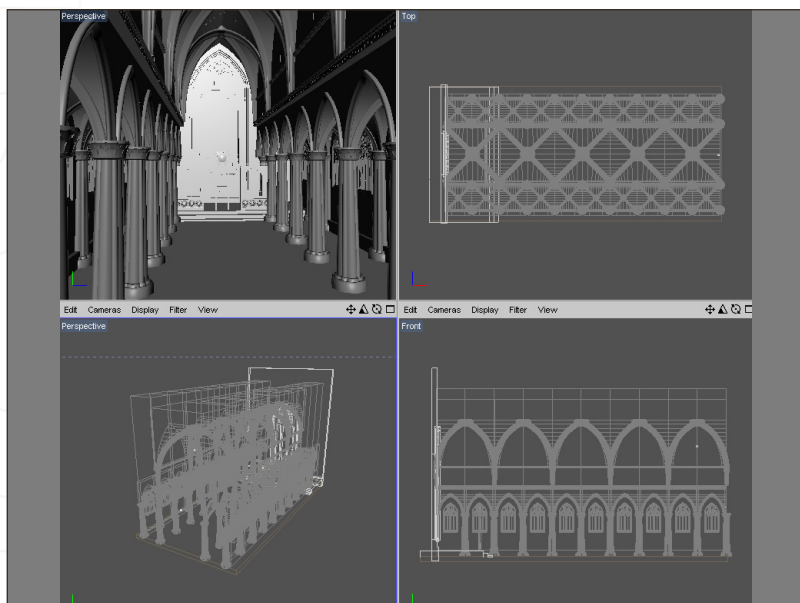


Fig 41

In **Fig.41** you can see the finished church.

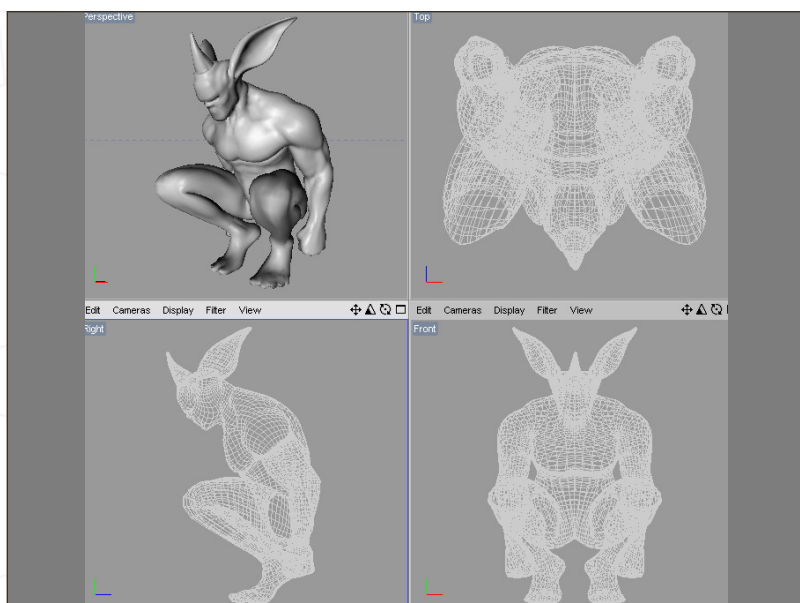


Fig 42

Once the altar is done, we can import the gargoyle statue in the scene (**Fig.42**).

Place the gargoyle statue on the column (Fig.43 & Fig.44).

With this, we can conclude the first part of the tutorial. Next time we will speak about texturing.

GOTHIC CHURCH INTERIOR CREATION

PART 1: MODELLING THE INTERIOR

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Fig 43



Fig 44





Gothic Church

Interior Creation

This series will provide an overview of the principal techniques used to create a gothic interior based upon a concept painting along with a tutorial on the process of sculpting a gargoyle character in ZBrush. Key methods covering modelling, texturing, lighting and rendering will be outlined over the course of the series and culminate in a chapter on post production and how to composite numerous render passes into a final image.

The schedule is as follows:

PART 1: This tutorial will outline some of the prominent approaches to building the church interior. We will cover some of the key methods and modifiers responsible for creating the scene and core geometry.

PART 2: Will focus on the creation of the gargoyle which will be mounted on one of the columns. This tutorial will orientate around Zbrush and its powerful sculpting tools and show how a detailed model can evolve from simple ZSpheres.

PART 3: This part will detail the texturing phase of the series and deal with mapping and unwrapping key areas of geometry alongside the gargoyle.

PART 4: Lighting and rendering will be the focus in this tutorial. Light rigs and a variety of render passes will be explained in readiness for part 5; the post production.

PART 5: This the final part of the series will show how the various render passes are composited in Photoshop to create a final render. An account of some of Photoshop's tools will show how versatile this approach can be and show the value of multiple passes for post production.



Gothic Church

INTERIOR CREATION

PART 1: MODELLING THE INTERIOR

CREATED IN:

Lightwave

PART 1

Welcome to the first part of this tutorial series, in which we will cover the essential techniques needed to model a church interior based on a concept painting.

Examine the concept and make a decision about which part you would like to start modelling first. The most prominent elements in the scene are the columns. They also define the spacing and proportions of the complete scene very well and are therefore an ideal starting point (**Fig.01**).

Columns consist of three parts: the base, the shaft and the capital. In our case the shaft is made of six cylinders. Start with the Disc tool and create a cylinder. Select the polygons from the cylinder wall; each fourth polygon stays unselected. Use the Multishift tool to extrude the selection - remember to check "group polygons". After that, use the Knife tool to make smaller segments towards the top and the bottom.

Use Smooth Shift twice: first to extrude the top and bottom, and second to extrude it without any offset. Use the Stretch tool to scale these two polys to 0. Delete these polygons and merge all the vertices (**Fig.02**).

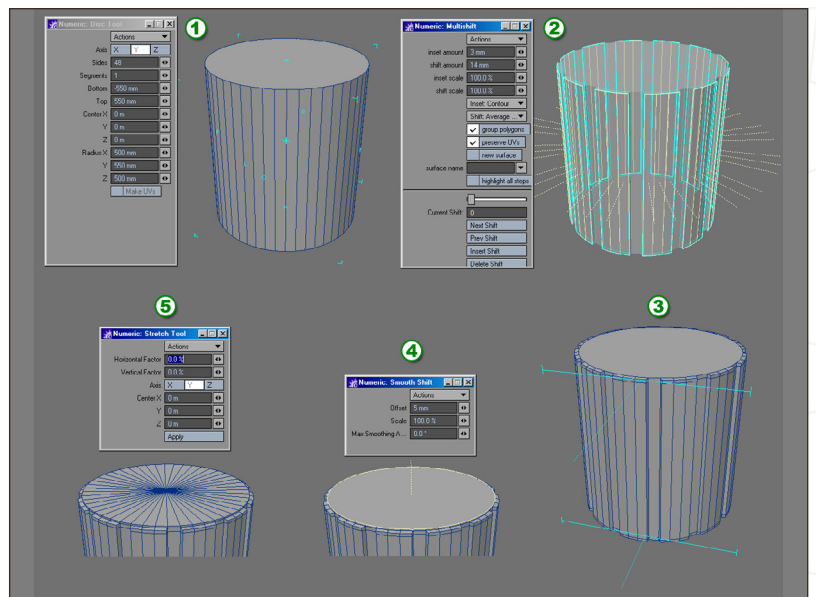
Copy the completed segment directly on top of the first segment. Delete the bottom polygons of this second cylinder. Select the polygon loop between the two and use Smooth Shift to offset it towards the inside.

Repeat these steps for all six segments of the column. Make sure that the top segment

Fig 01



Fig 02



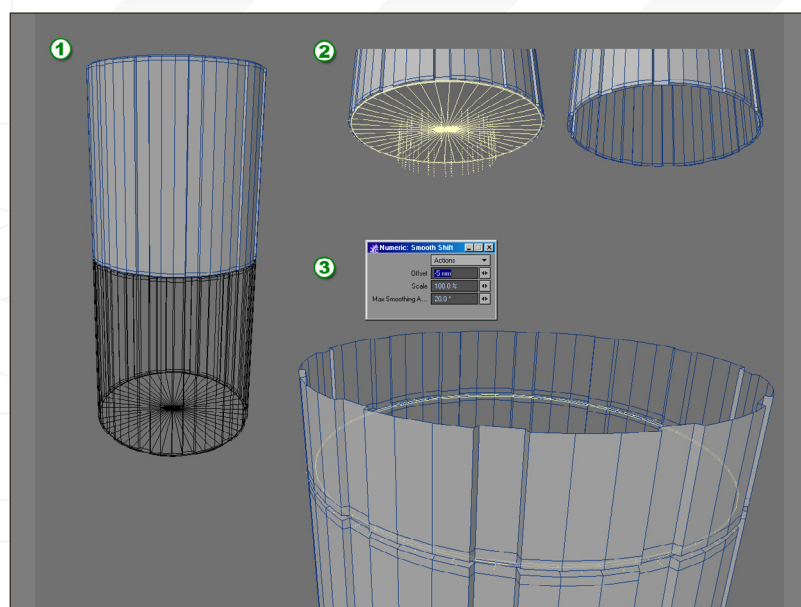


Fig 03

is closed on the top, just like the bottom. Also always make sure to merge all the vertices (Fig.03).

Convert the polygons into SubPatched Geometry (hit "Tab" on your keyboard). As you have seen, there are a few principles when working with SubPatched Geometry. Always use only four point polys if possible, and try to only use three point polys in hidden places. Use as few polygons as possible. Add an edge to make an edge harder. Always try to keep a smooth poly flow – I will talk more about this later.

As columns are often less thick near the ceiling, use the Taper tool (Fig.04).

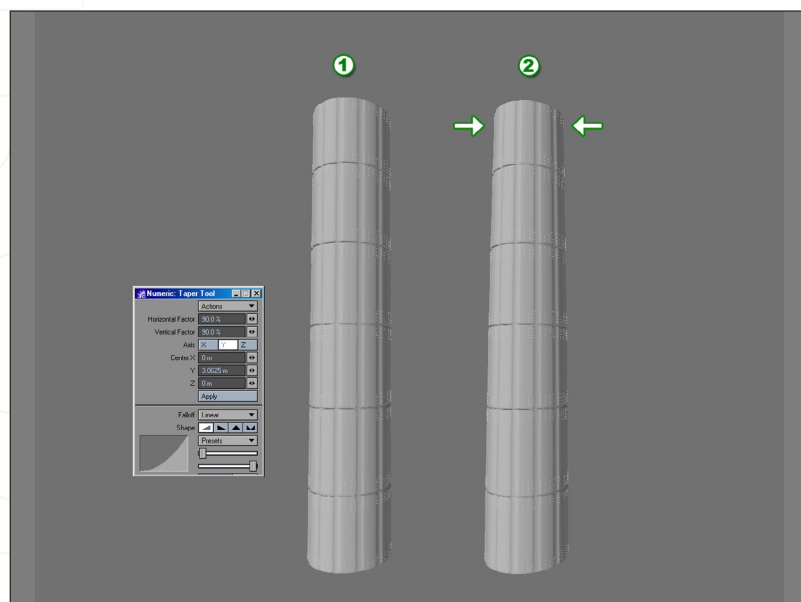


Fig 04

Continue with the base of the column. Create a profile polygon for it point by point first, then go in and use the Add Points Tool to refine it. Try to use as few points as possible. Where ever you want hard edges, place two vertices close to each other.

When your profile polygon is done, use the Lathe tool. In the end convert the completed base to SubPatch (Fig.05).

The capital of the column is a bit more complicated. Create the lower ring with a poly profile and the Lathe tool, just as you did with the base. Extrude the top polygons so you have a cylinder on top of the lower ring. Select two vertices of the top edge and scale them to 30% (simply change Action Center to Selection and scale). Then move them outwards. Do this for the four top corners. Then extrude the top via the Multishift tool and form the top as you like.

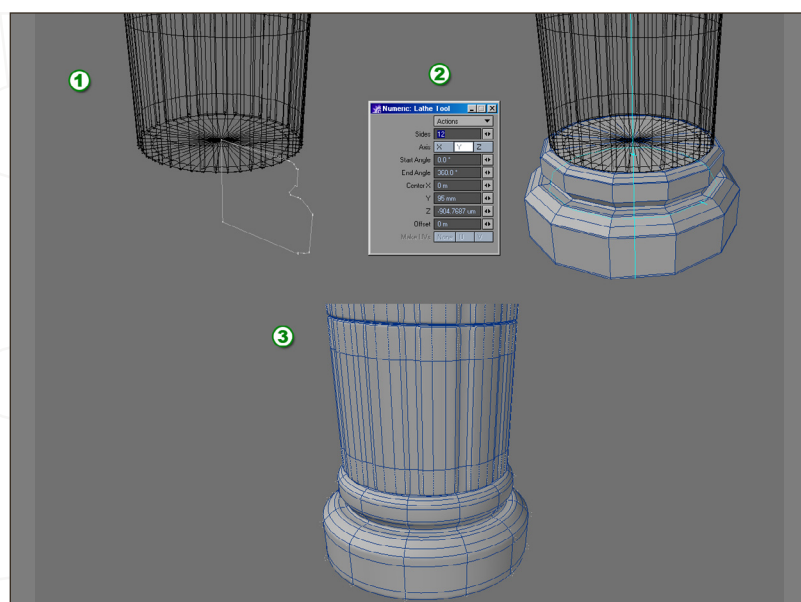


Fig 05

To refine the part between the lower and upper ring, use the Knife tool to add edges. Move and scale them in place until you have a good form.

Select some of the corner polygons and use the Multishift tool again to add accented edges (Fig.06).

Create a clean intersection by merging the three polygons underneath the accented edge. Use the Split tool to add edges and divide the multipoint polygon into three polygons with four vertices. Also use the Bandsaw tool to divide the polygon ring underneath and to create a sharp edge again.

Hit SubPatch to see the result. Remember me talking about “poly flow”? This is what I meant by it. The mesh is divided and smoothed, but maintains a consistent look without any unwanted distortions.

Add a few more details if you like, but keep in mind that most of the details will be done through textures (**Fig.07**).

Clone the column nine times. The last three columns should be placed after the transept of the church, so move them a bit back. Move all columns to the right and mirror them to the other side – left and right side should be one column length apart (**Fig.08**).

Tip: As this work is very important for the correct proportions of the complete scene, I suggest you go into Layout at this point and place your model and set up a basic camera. This allows you to better compare and adjust the look of your model against the concept painting. Keep that scene over your modelling process and compare often.

To connect the columns we are now going to create the arches. Make a profile of the arch using curves. Freeze your curves and you get a polygon. Remove the unnecessary vertices before extruding the profile. Bevel the sides of the arch with the Multishift tool.

With the Knife or Bandsaw tool you can divide the arch into smaller segments. These segments can be moved inwards with the Multishift tool to create some notches along the arch. Usually you use three steps for Multishift. One small inset and offset to form a rounded edge, then the main offset inwards and finally

Fig 06

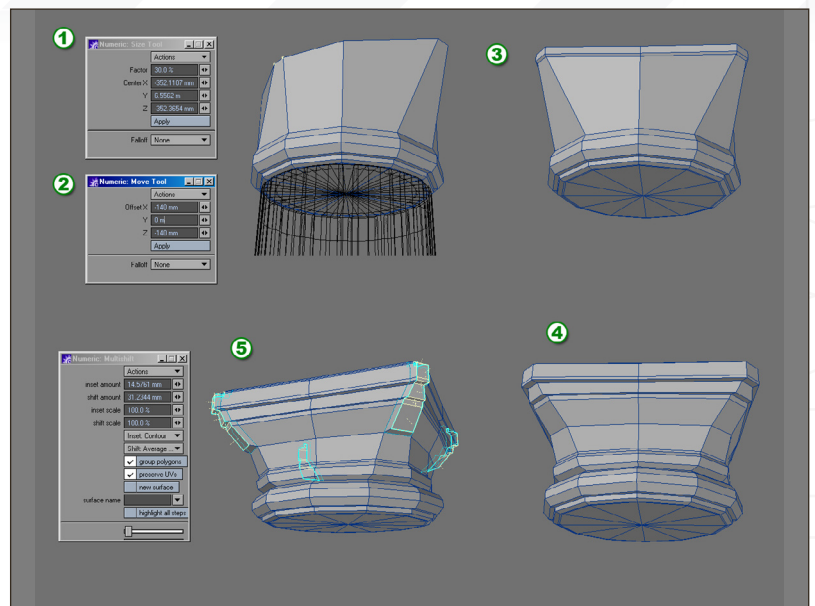


Fig 07

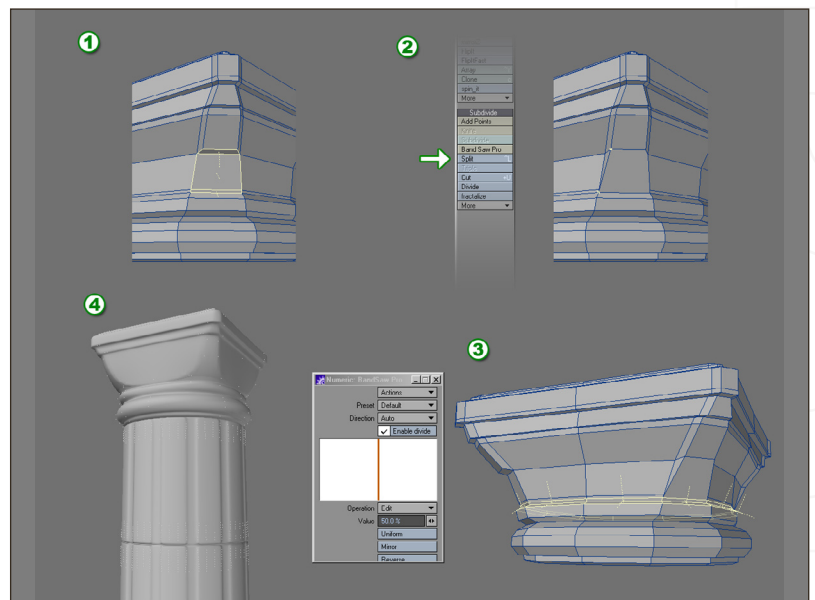
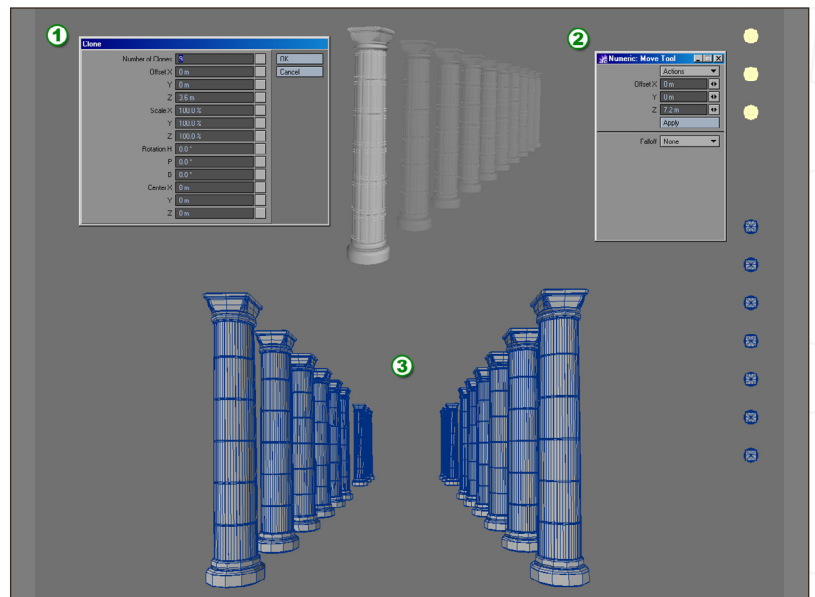


Fig 08



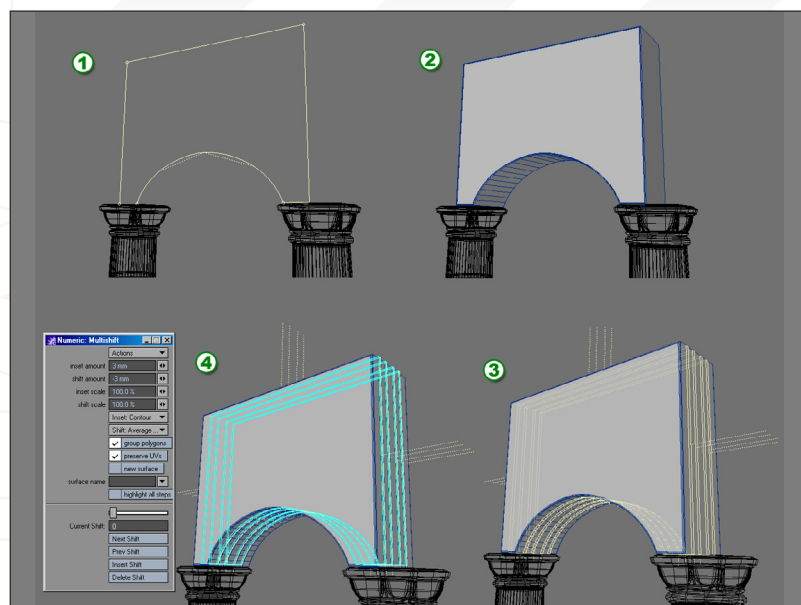


Fig 09

another inset and offset to make the inner edge rounded as well (**Fig.09**).

Scale the side walls to 0 on the X-axis to remove the beveled edges. Then duplicate the arch element over each column.

Delete the unseen polygons for all arches that share a side. Always remember to merge all vertices (**Fig.10**).

The ceiling for the nave of the church is the next very important element we are going to focus on. If you look at **Fig.11** you can follow how to proceed with the work. The black lines in the background show the result.

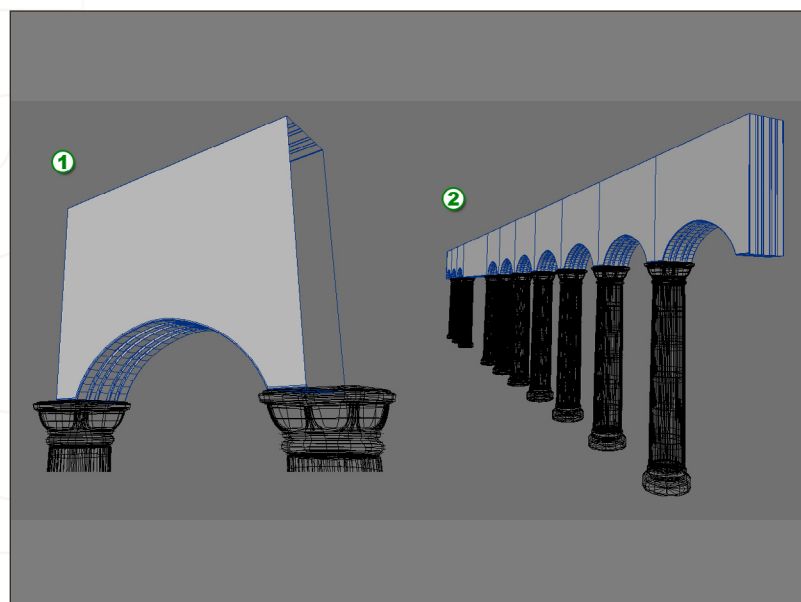


Fig 10

Create one rectangular polygon and continue to work from that. Make cuts with the Knife tool and move the points into the right position. You can attach new polygons to this line of polygons; create two new points, select them along with two existing points from the mesh and use the Make Polygon tool.

When you are done with this element, mirror it using the X-axis. Mirror the resulting part again using the Z-axis (**Fig.11**).

Tip: Mirror often and check how the parts fit together. Also turn on SubPatching often. You can fix certain problems with polygons better, when you see the big picture.

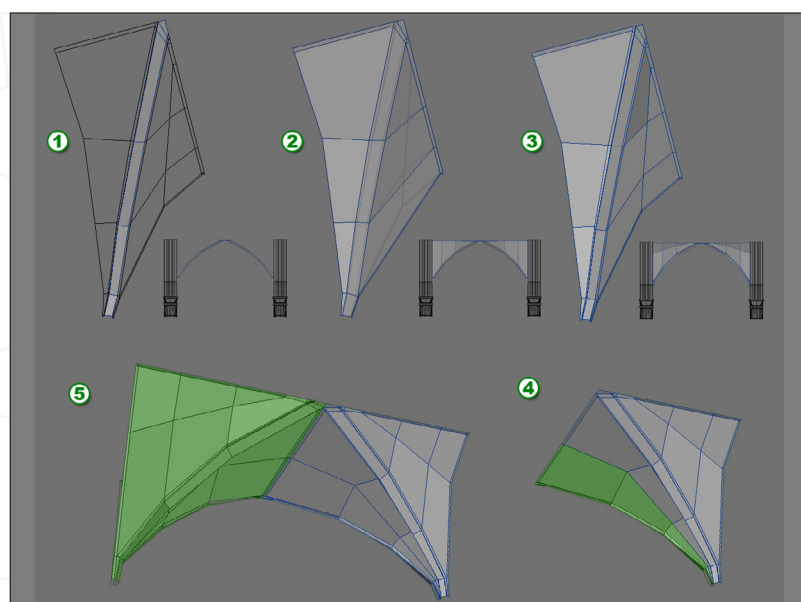


Fig 11

The finished ceiling element can now be copied along the row of columns.

For the transept part, just create an element to "close the gap". It is very far into the church and won't be that visible in the end. Just select both edges of the opposite ceiling parts and click the Connect tool to create the polygons. Use the Knife tool to divide the polygons into a few more segments and move the points in the middle up so it forms a bulge. Turn on SubPatch.

Once the ceiling is complete, create the base to connect the columns with the ceiling. Start with

a box and use the Knife tool to add more edges, then move these edges in or out to create a good silhouette. Duplicate this element for every column once you are done (**Fig.12**).

Now we are going to create the big windows just behind the altar. Create a shape for the big windows. Use curves first until you are happy, and then freeze these curves to get polygons. Remove all the vertices that are on straight edges.

Keep a copy of these shapes, you will need them often.

Extrude these polygons. Create a box for the back wall at the end of the church and use the Boolean tool to subtract the extruded windows.

Use the Multishift tool on another copy of the window shapes. Form the window frames with it.

To add detail to the windows create various arches. Again use curves first, then freeze them and continue with polygons.

Sometimes it is easier to use disc polygons - place them where you'd like to have arches. When you have everything in place, bevel them inwards and delete the disc. Continue to work with the edge from the bevel instead. This way you can easily add a lot of detail (**Fig.13**).

For the window frames you start with the Multishift tool again. Use the window shapes from before and bevel them inwards. Then add boxes to form the grid that holds all the glass pieces.

To give the wall more detail, add some subpatched geometry again. Use the same technique as in **Fig.12**. Start with a box and use the Knife tool to add edges (**Fig.14**).

The altar is the last element we are going to focus on. Start with the footprint of the side element. Extrude it with the Multishift tool – make use of the Prev and Next buttons to cycle

Fig 12

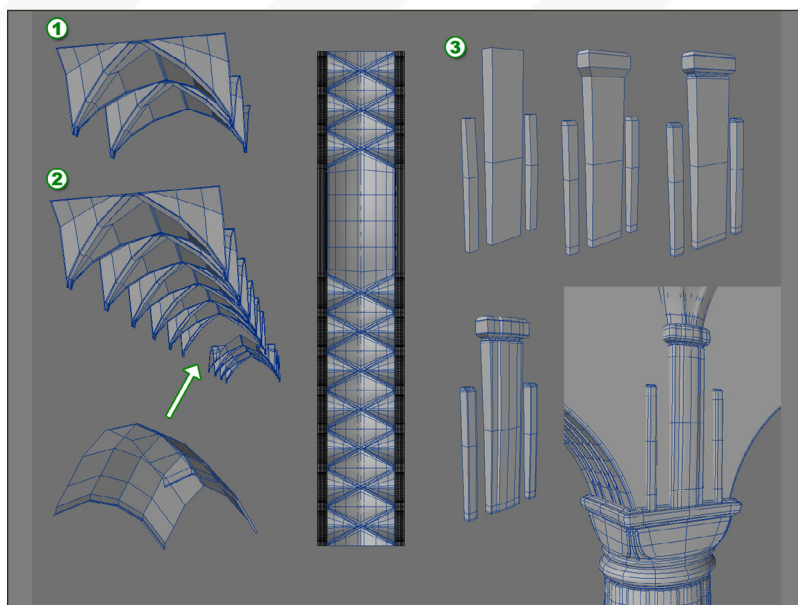


Fig 13

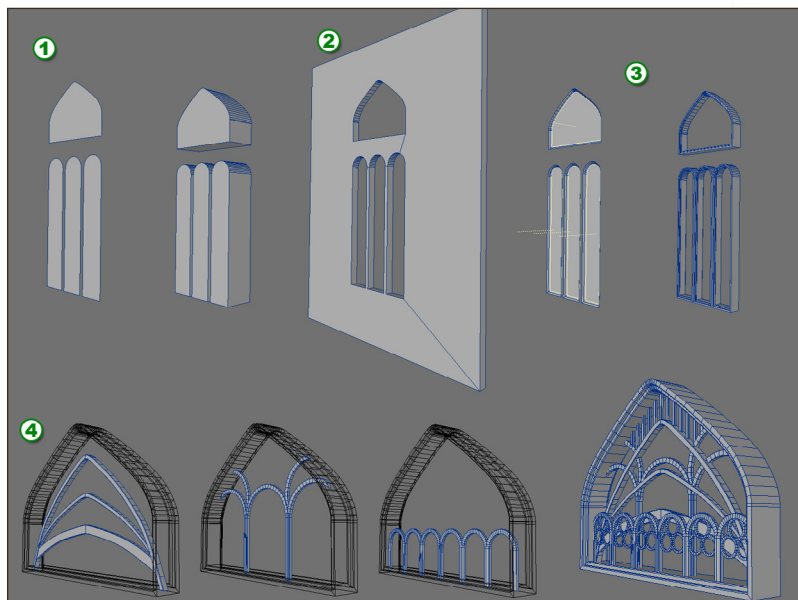
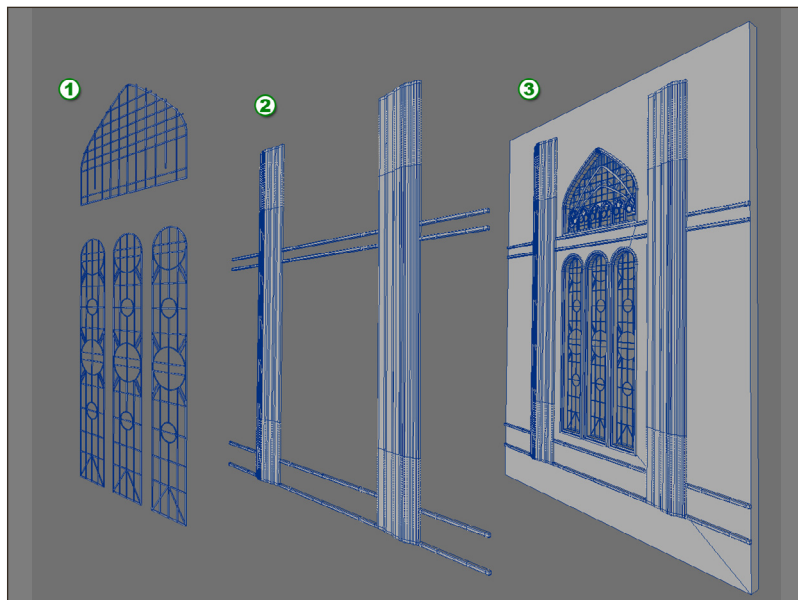


Fig 14



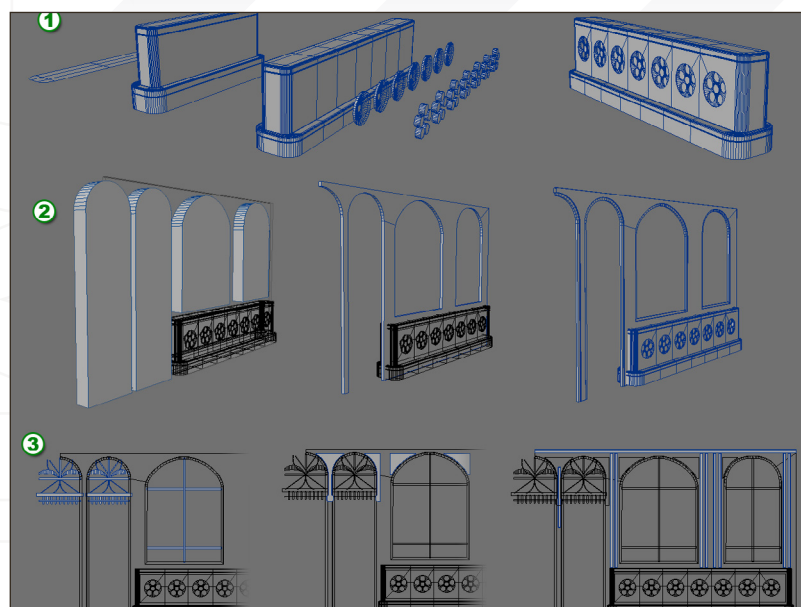


Fig 15

between your bevel steps to optimise the look. Once you are done, adjust the size by moving the points directly into space. Use the Knife tool to add edges – this is important for the boolean operation. This way you have one cut in one polygon and the result is much cleaner.

Create big discs and bevel them inwards. Subtract them from the side element. When you are done, create smaller discs and subtract them again. After that create a box for the inside and subtract that again – just make sure that the box intersects with the small discs. This last boolean makes the side element hollow so you can look through the holes inside.

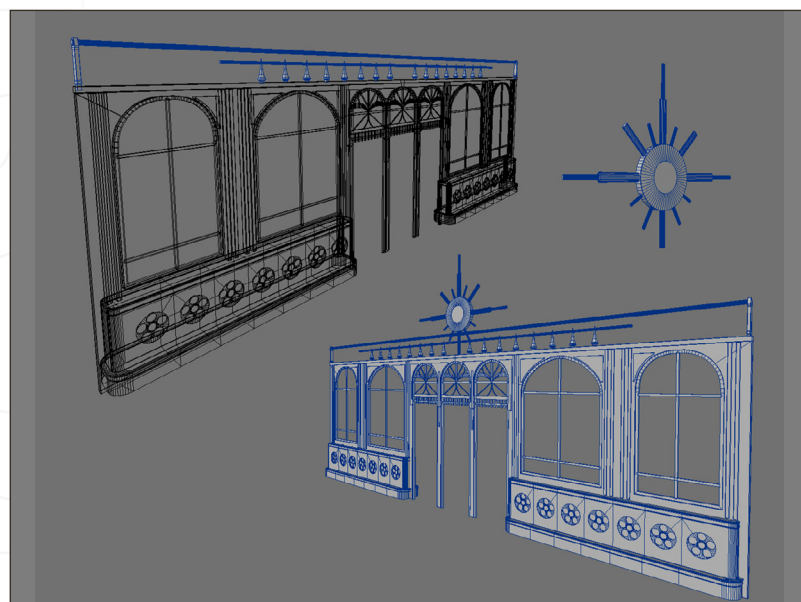


Fig 16

Don't forget to merge your points after each boolean. Also try to work as cleanly as possible with booleans, as they tend to mess up your mesh. Generally don't use boolean in foreground objects.

For the altar frames, start with a thin box and use boolean once more to subtract the openings for the door and windows. Add detail just like with the big windows of the church (**Fig.15**).

Where you would like to have small arches use discs, bevel them inwards and leave only the ring. Most of the other details can be created with boxes. Even for the top you can just create primitives, scale and rotate them and put them in place. For the spikes on the top, start also with a box and add edges with the Knife tool before turning on SubPatching.

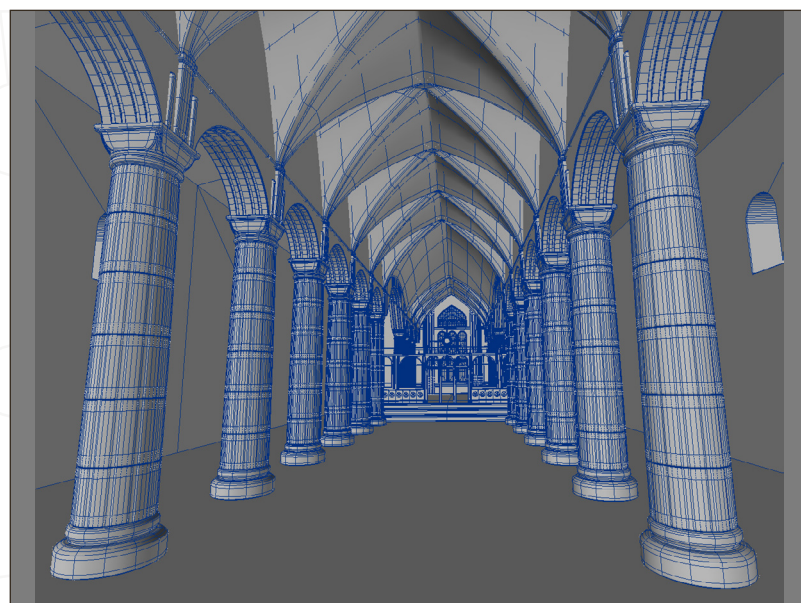


Fig 17

A good way to distribute these spikes along the edge would be to use the Clone tool. Just enter the number of clones and the distance between them (**Fig.16**).

Finally create the missing walls and the ceiling of the aisle to finish the scene. Most of these parts will be rather dark as they lie in the shadow, so I suggest you keep these elements very basic. It is just important to cut windows into the walls, so light can shine in (**Fig.17 & Fig.18**).

The biggest part of this scene is finished. However, the creation of a very important element - the gargoyle - will be dealt with in the next part of this tutorial series.

For now, I hope you enjoyed this first part of the tutorial. If you have any questions, feel free to contact me via my homepage.

GOTHIC CHURCH INTERIOR CREATION

PART 1: MODELLING THE INTERIOR

DOUGH-CGI :
ROMAN KESSLER

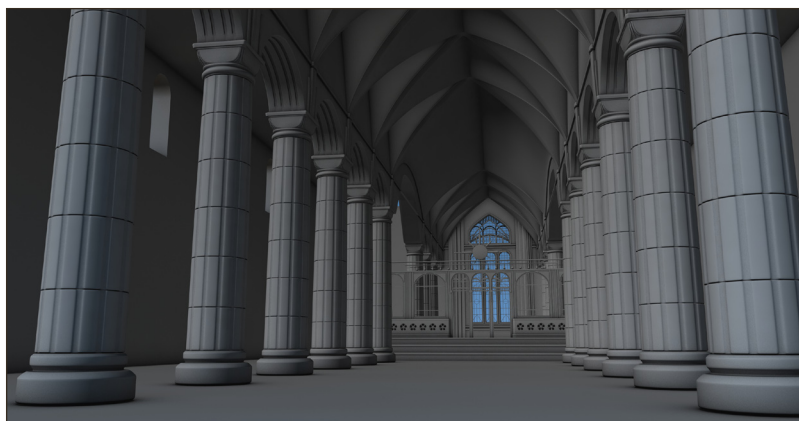
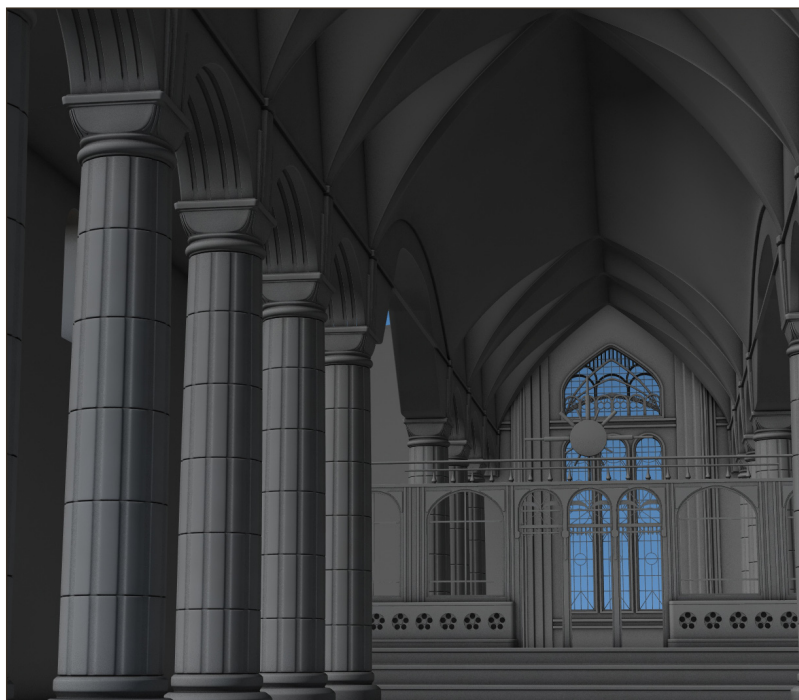
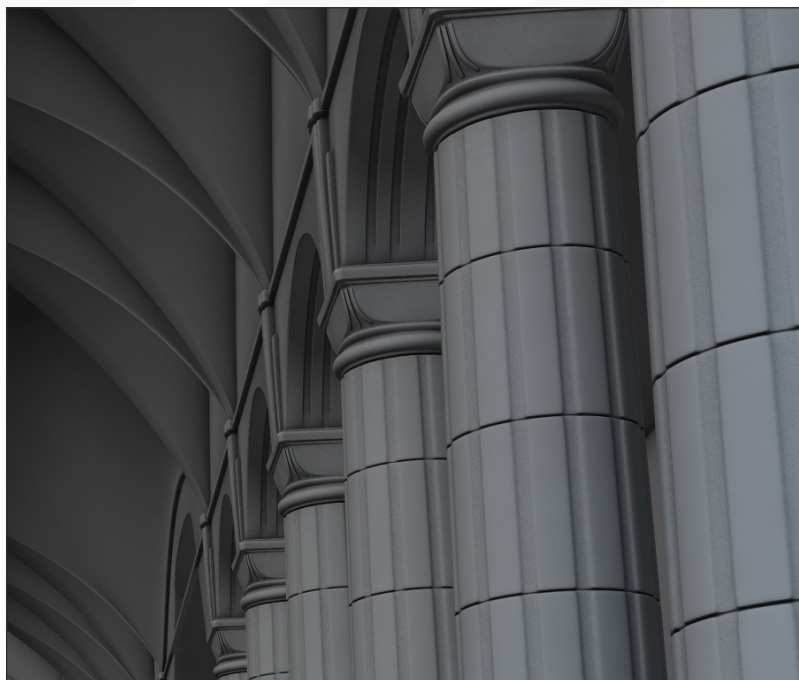
For more from this artist visit:

<http://www.dough-cgi.de>

Or contact:

info@dough-cgi.de

Fig 19





Gothic Church

Interior Creation

This series will provide an overview of the principal techniques used to create a gothic interior based upon a concept painting along with a tutorial on the process of sculpting a gargoyle character in ZBrush. Key methods covering modelling, texturing, lighting and rendering will be outlined over the course of the series and culminate in a chapter on post production and how to composite numerous render passes into a final image.

The schedule is as follows:

PART 1: This tutorial will outline some of the prominent approaches to building the church interior. We will cover some of the key methods and modifiers responsible for creating the scene and core geometry.

PART 2: Will focus on the creation of the gargoyle which will be mounted on one of the columns. This tutorial will orientate around Zbrush and its powerful sculpting tools and show how a detailed model can evolve from simple ZSpheres.

PART 3: This part will detail the texturing phase of the series and deal with mapping and unwrapping key areas of geometry alongside the gargoyle.

PART 4: Lighting and rendering will be the focus in this tutorial. Light rigs and a variety of render passes will be explained in readiness for part 5; the post production.

PART 5: This the final part of the series will show how the various render passes are composited in Photoshop to create a final render. An account of some of Photoshop's tools will show how versatile this approach can be and show the value of multiple passes for post production.



Gothic Church

INTERIOR CREATION

PART 1: MODELLING THE INTERIOR

CREATED IN:

Maya

INTRODUCTION

In this part of the tutorial, we are going to create the interior of a Gothic-style church, based on a 2D concept image. When we look at the church some key features we can find are the rib-vault and the pointed arch. The word "Gothic" was first used for architecture from about the tenth to the late thirteenth century, and it reached its high period around the fifteenth century. The rib-vault was the development of architectural technology; compared to the Romanesque groin-vault, the rib-vault allowed the church to reach much higher, and the advances of this architectural development are directly related to the ideas of the medieval period: the church looking lighter and weightless.

The pointed arch is a cultural influence from ancient Asia (Persia) that was integrated into medieval architecture around the period of Norman the Conqueror. Pointed arches allow the arch to reach any desired height regardless of the width of its base.

After that basic review of the architecture, let's move onto our 3D scene.

PART I - THE VERY BEGINNING

When we model in 3D, we usually use a blueprint and lay it out inside our view ports so that we can see the different angles. In this project, we are going to build our 3D scene based on a single 2D concept painting.

First let's do a simple study on the perspective and portion of each object inside our scene, as

Fig 01

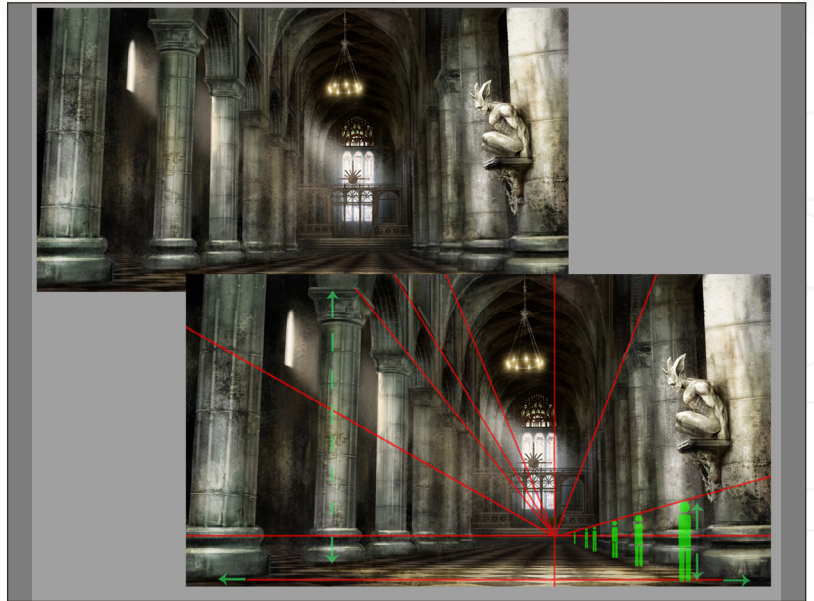


Fig 02

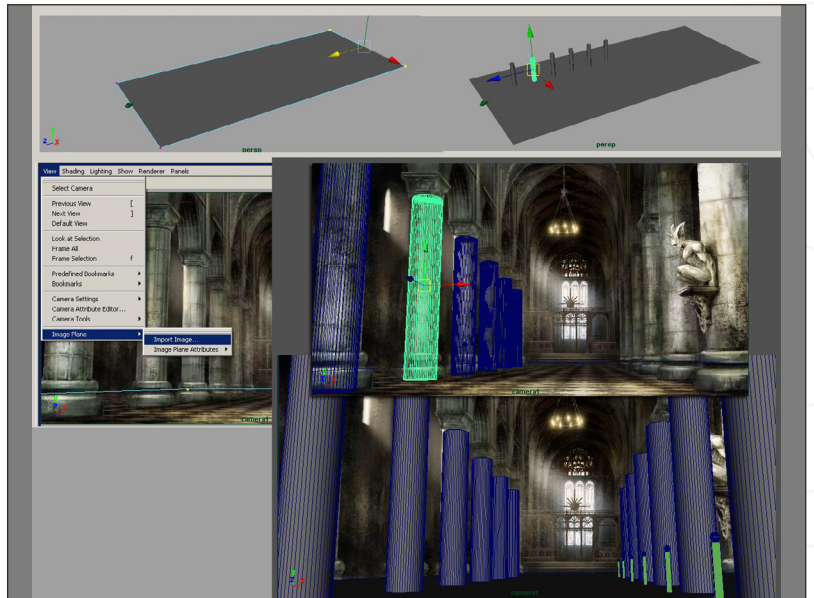
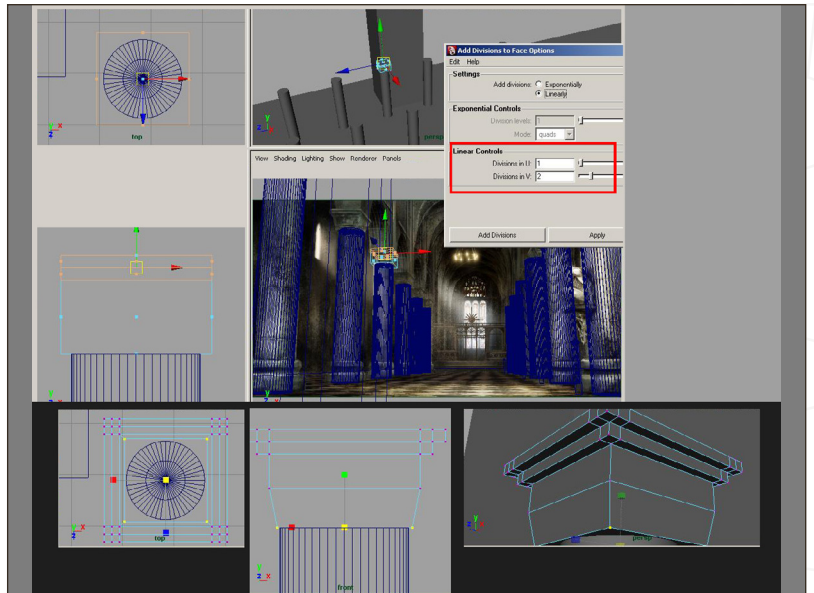


Fig 03



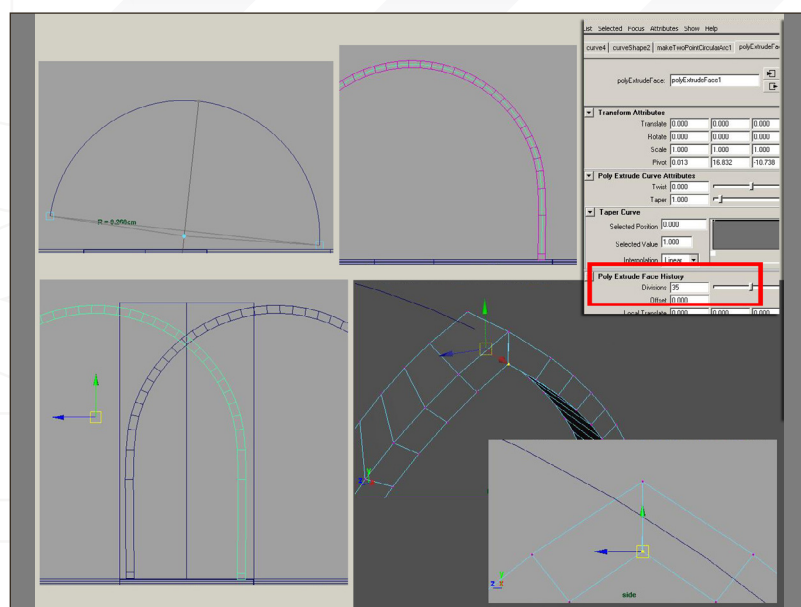


Fig 04

this will help to make things easier when we start to model our scene. Try to figure out where the vanishing point of our image is, and from there let's try to add in a common, human-height object to help us study the scale of our scene.

After all the reviewing of our 2D concept painting, it's time to move on and build our scene inside Maya (**Fig.01**).

PREPARING FOR THE MODELLING

First let's create a new camera, and inside the viewport, switch to the new camera (Panel > Camera1), and go the View > Image Plane > Import Image and import our 2D concept painting inside our viewport. Go to the image plane attributes editor and leave everything to the default settings, except for the "Display" option, which needs to be changed to "looking through the camera". This will avoid our reference image being displayed in other viewports (**Fig.02**).

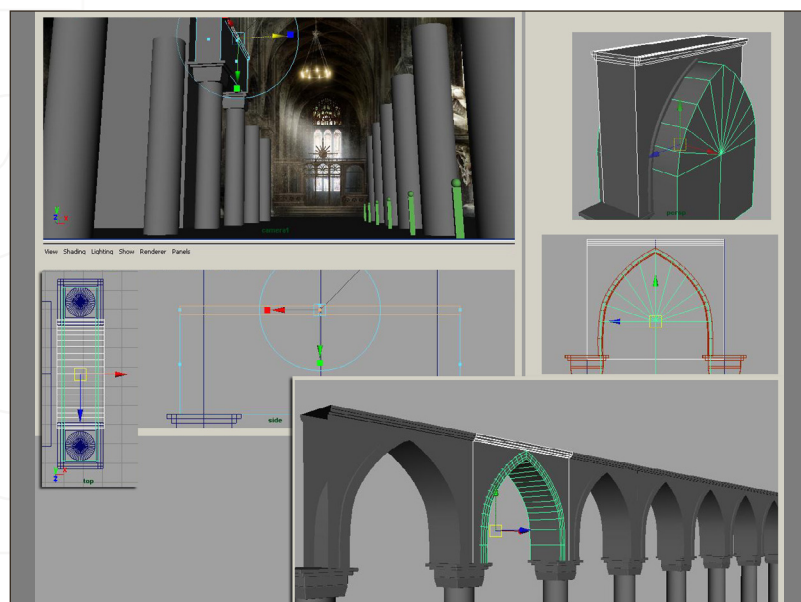


Fig 05

From the top view, create a polygon plane. Scale it until you are able to see it inside our new camera view and we will treat this as the navel of the church. Next, create another polygon cylinder which will become the columns. With the help of this second object, we will move our camera around (View > Camera tool) and match the perspective of our 3D scene with the 2D concept image. In-between this, start to duplicate and place the columns into their position and use the top view to make sure the columns are an equal distance from one another.

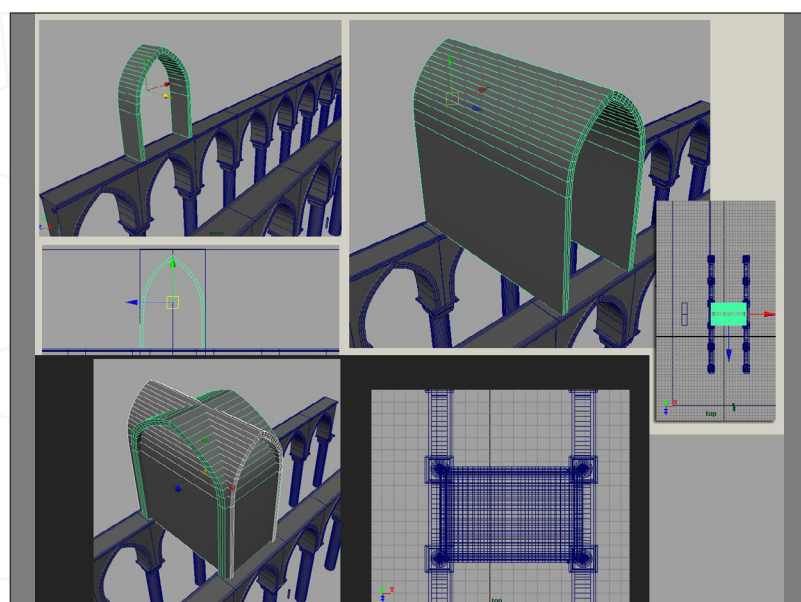


Fig 06

After all our objects match up with the perspective of the 2D concept image, lock the movement of the camera under attribute editor - just select all the movement attributes, right-click and select "Lock selected" from the pop-up menu. Now we won't be able to move the camera until it's unlocked again. With the help of the camera, we can now start to build the main structure of our scene.

PART II – MODELLING THE MAIN STRUCTURE

CAPITAL

The first step is to create the capital of the columns. So from the top view, create a polygon box and place it at the centre of the column. Use the reference camera to find the correct height of the capital. Switch to the vertex mode (right-click on the object) and move the vertices to adjust the size of the polygon box (**Fig.03**).

Add in extra edges by using Edit Mesh > Add Edge Loop tool at 1/4 the height of the polygon box. Select all the newly created faces and use the Edit Mesh > Add Divisions tool to split the faces equally into two.

Select the new faces and use Edit Mesh > Extrude face to form the shape.

The last thing to do is to select all of the vertices at the bottom and scale it down until they reach the border of the column.

ARCADE ARCH

From the top view, create a polygon box, place it at the top of the two capitals and move the vertices until both sides of the polygon box are in the middle of the columns. From the camera view, adjust the height of the polygon box.

From the side view, use Create > Arch Tool > Two Point Circular Arch to create an arch shape of the curve and place the first point at the top of the capital. The placement of the second point allows us to shape the radius of the arch, so make sure the size fits inside the polygon box that we created before and that the bottom of the curve is a vertical line (**Fig.04**).

Create a polygon box at the bottom of the curve, switch to the face view, and select the curve with the top face. "Extrude" the polygon face and increase the division. Then select the object and delete the history (Edit > Delete by Type > History) as this will cut off the curve's influence

Fig 07

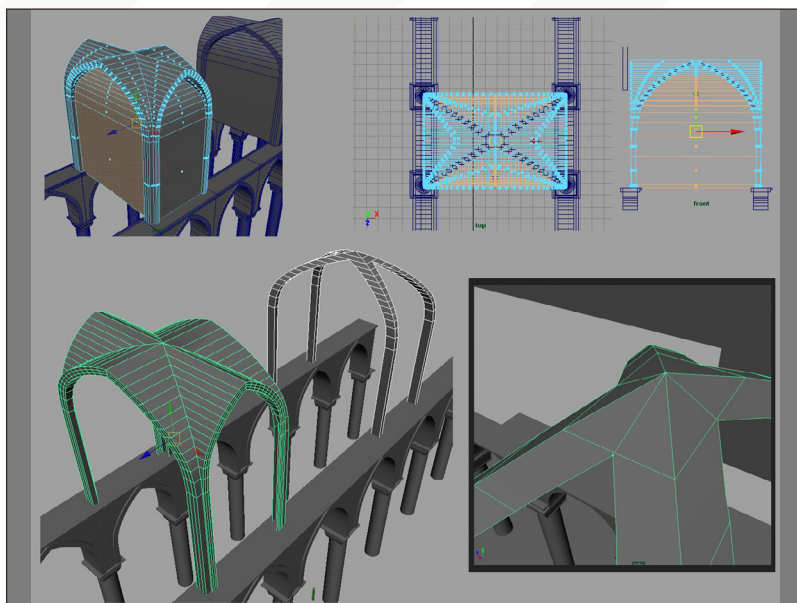


Fig 08

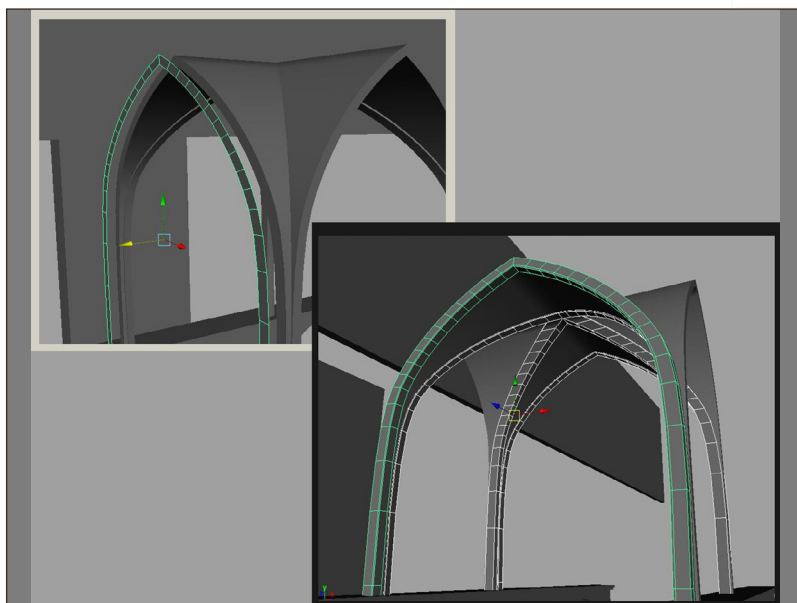
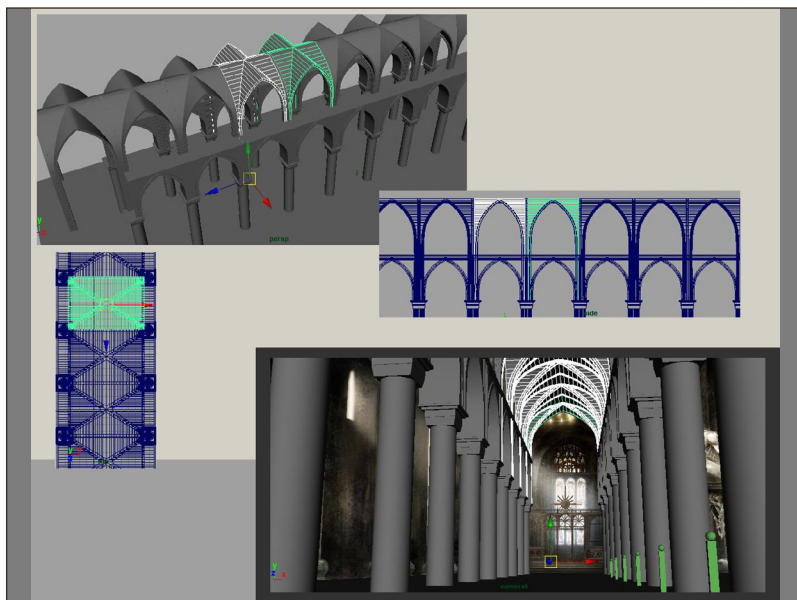


Fig 09



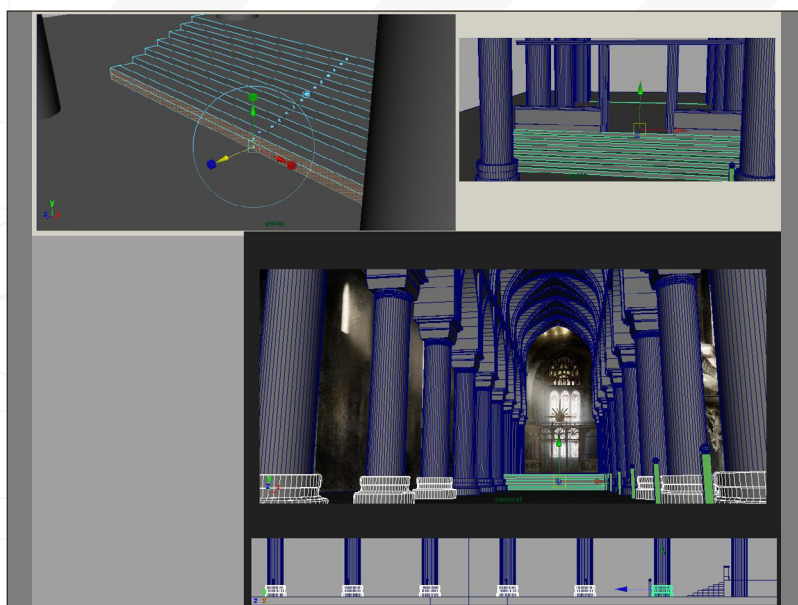


Fig 10

on the new object and extend the height of the bottom by moving the vertices.

Duplicate the new extruded polygon and scale the Z-axis at -1 as this will mirror the object to another side. Move both of the objects until they form the pointed arch shape. Now use Mesh > Combine to combine both objects and delete the unnecessary faces on top. Use the Edit Mesh > Merge tool to merge the separated vertices on the peak of the arch. From the side view, tweak the vertex to form the peak of the arch.

Scale the arch from the top view and line up the view with the border of the polygon box.

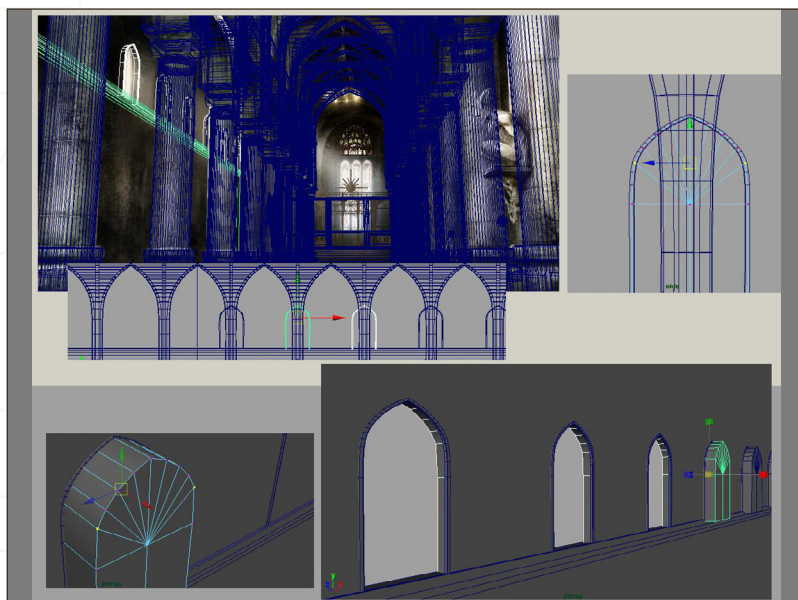


Fig 11

From the side view, create a polygon cylinder. Place it at the position of the arch and move the vertex to get a draft form of arch. Now select the "polygon box" and shift-select the polygon cylinder, using the Booleans > Difference tool to cut out the shape of the arcade (**Fig.05**).

Add in some layers to the arcade with the tool we mentioned before.

Now group the objects together, duplicate them and move them to the top of each of the two columns.

RIB-VAULT

Now let's duplicate one of the arches we created. Extend the height of the bottom part and place it above the arcade. From the top view, scale and position it until it reaches the centre of both side columns, then duplicate the arch and rotate it 90 degrees. This will give you the basic shape of the vault (**Fig.06**).

Select both of the arches and duplicate them once again and move them aside.

For the first pair of the arches, use Mesh > Boolean > Union to join them together. From the side and top view delete the unnecessary faces and now we get the basic shape of the vault.

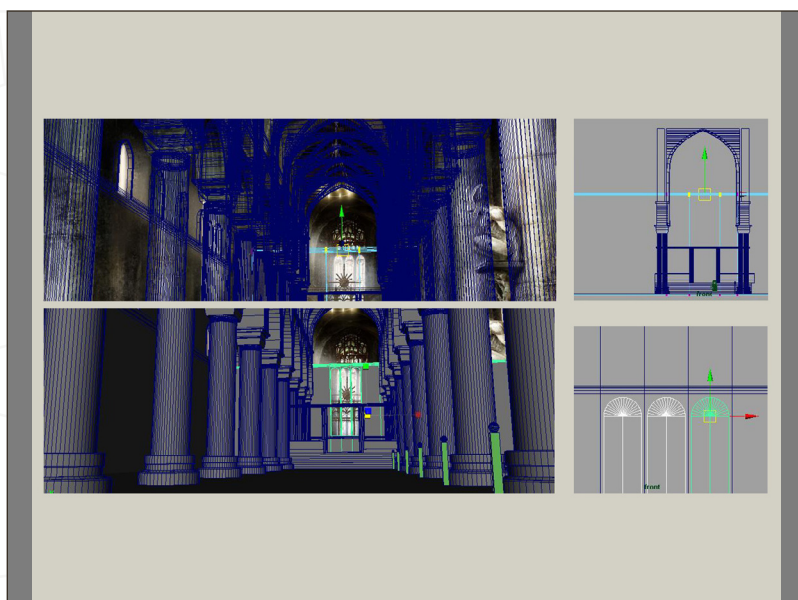
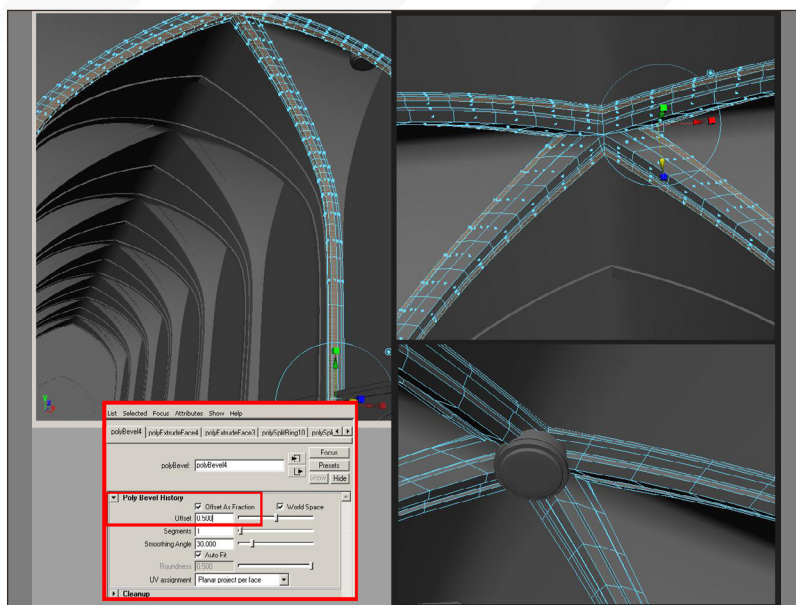


Fig 12

For the second pair of the arches, use Mesh > Boolean > Difference to cut out the shape of ribs for the vault (**Fig.07**).

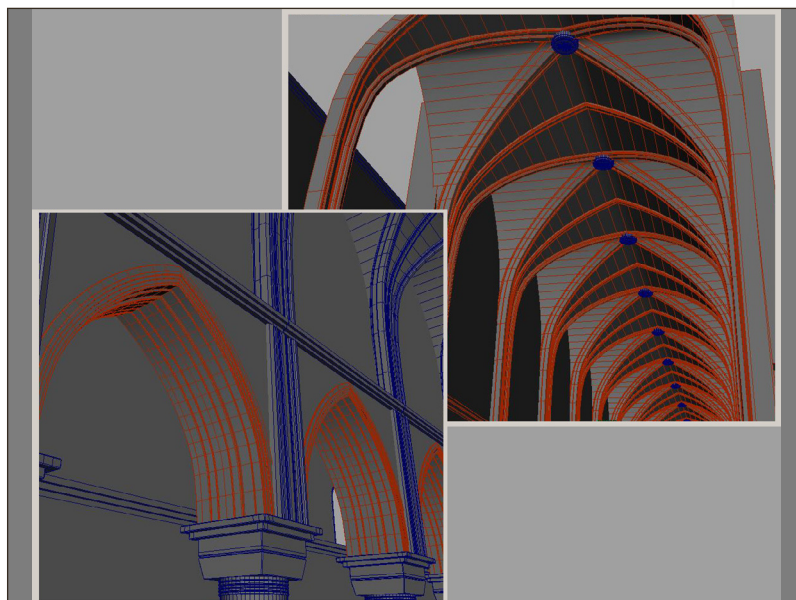
After the ribs have been created, move the second pair of arches back to the centre of the vault, select the inside faces of the ribs and extrude them in the Z-axis to give a structural difference between the ribs and the vault. Duplicate the side faces of the vault by using Edit Mesh > Duplicate Face. With these duplicated faces, extrude the faces to form the side ribs of the vault. Once done, duplicate the side ribs and move them to another side (**Fig.08**).

Fig 13



After all the elements have been created, group them together and duplicate them for each of the pairs of columns (**Fig.09**).

Fig 14

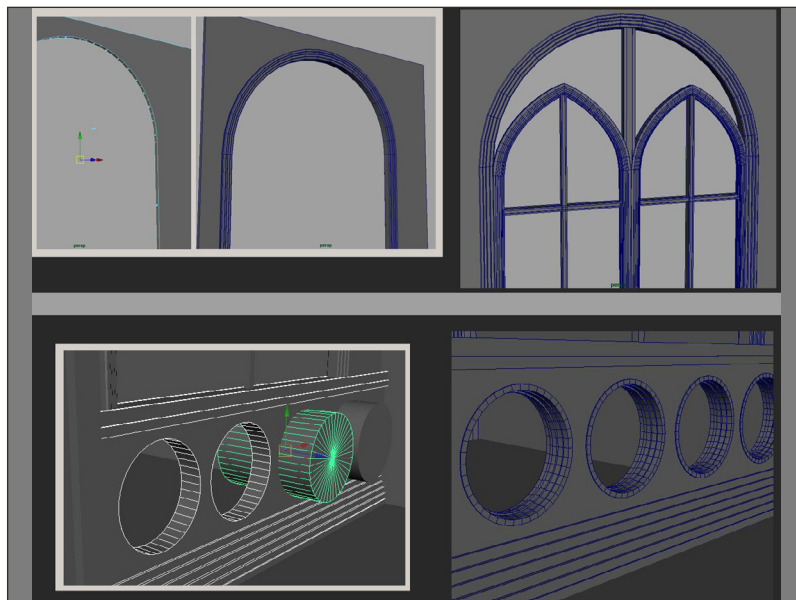


Switch to the camera view to review our newly created structure alongside the 2D concept painting.

4. REST OF THE OBJECTS

Using a similar method, create the base of the column/altar, the side wall and the windows (**Fig.10 – Fig.12**). Remember to keep switching back to the camera view to figure out all the positions of the objects. Once all the basic elements are in the correct positions, we can move on to the next part and add some detailing to each object.

Fig 15



PART III - MODELLING THE DETAILS

RIB VAULT

First let's focus on the rib-vault. Use the Edit Mesh > Add Edge Loop tool to add extra edges to each side and to the centre of the ribs. Then "extrude" to create new faces and give the ribs some more layers on the structure.

After the faces are extruded, select all the edges by using Select > Select Edge Loop. Now we can use Edit Mesh > Bevel to smooth the edges;

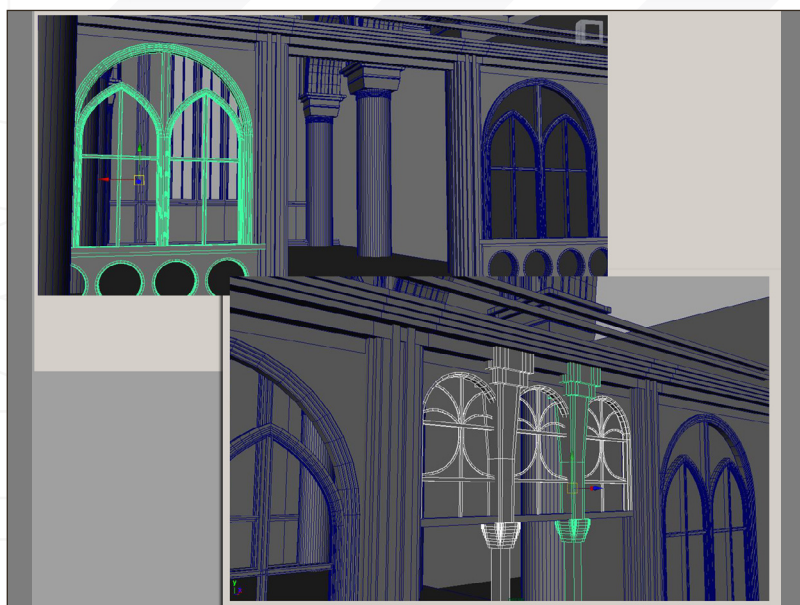


Fig 16

set the options to: "Offset" and "Segment" under "Bevel". With this we are able to control the amount and the distance of the edge (**Fig.13**).

Now from the top view let's create a polygon cylinder, place it at the centre of the rib-vault and add some layers to it. This will be the boss of the rib-vault.

After all the elements have been modified, group the rib boss and vault together, and duplicate it. Move and replace the rest of the vault.

Using a similar method, let's create some layers for the arcade arch (**Fig.14**).

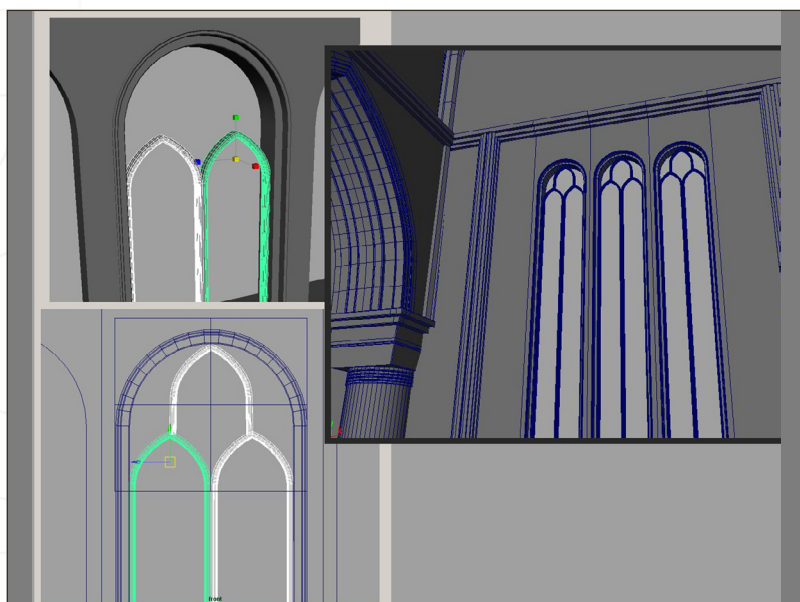


Fig 17

ALTAR

With the help of the camera view, let's create a side window frame. Using the top view, create a polygon box and place it on the basic altar structure that we created before. From the front view, create another polygon cylinder and place it where we are going to cut out a window frame. Delete the bottom half of the cylinder, fill the deleted face by using Edit Mesh > Fill Hole Tool, and extend the height of the bottom part. Then cut another window frame with the "Boolean" tool.

Duplicate the faces of the cut-out face by using Edit Mesh > Duplicate Face. Once the face has been duplicated, extrude it to create the window frame and add in some layers to it.

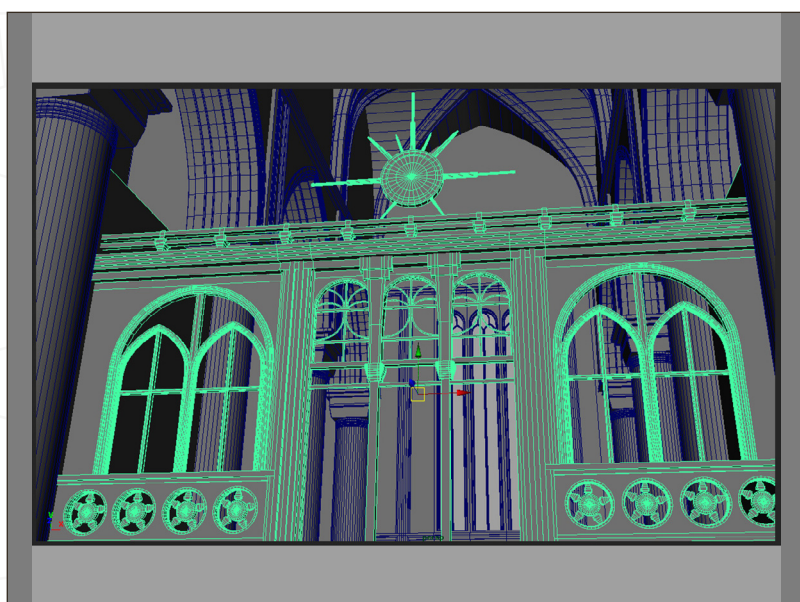


Fig 18

Now duplicate the arcade arch, scale it and place it inside the window frame. Extend the height of the bottom part of the arch, create a cross form of the polygon box and place it at the centre of the arch (**Fig.15**).

With the same method, create the elements below the window frame.

After one side of all the objects have been created, group them together, duplicate the group and move it to the other side of the altar (**Fig.16**).

Using a similar method to the one we used before, let's create some more elements for the altar, basing our ideas on the 2D concept image. With the help of the camera view, adjust, scale and position all the objects to match up with the 2D painting (**Fig.17 & Fig.18**).

CHURCH LAMP

From the top view, let's create a polygon pipe (Subdivision segment = 9). Create another polygon cylinder at the centre of the polygon pipe, using the "Add Edge" tool and "Extrude" tool to shape the form of the cylinder. Back in the top view, create another polygon cylinder, rotate it 90 degrees and place it to one side of the first polygon cylinder. With the "Move" tool, press the insert key to activate the pivot point manipulation model and now you can see that the pivot point has changed to another symbol. This allows us to manipulate the pivot point. Move it to the centre of the first polygon cylinder and then press the insert key again to go back. Now we are able to duplicate and rotate the second polygon around the side of the first polygon. Let's duplicate it for each side of the first polygon and once this has been done, use the "Boolean" tool to create the shapes, one by one (**Fig.19**).

Using a similar method, let's create some more elements for the lamp. Once the basic form has been created, from the top view create a polygon box and place it at the edge of the lamp holder. Switch to the side view, use the Create > CP Curve tool to create an ear-shaped curve. Now let's extrude the side face of the polygon along this curve. Once you've done this, delete the history of the newly created shape and change the pivot point to the centre of the lamp holder. Duplicate the object to each edge of the lamp holder (**Fig.20**).

Basing it on the polygon cylinder, let's create the candle, candle holder and the wires (**Fig.21**). After all the objects have been created, group them together. From the camera view, place the lamp in the correct position and adjust the

Fig 19

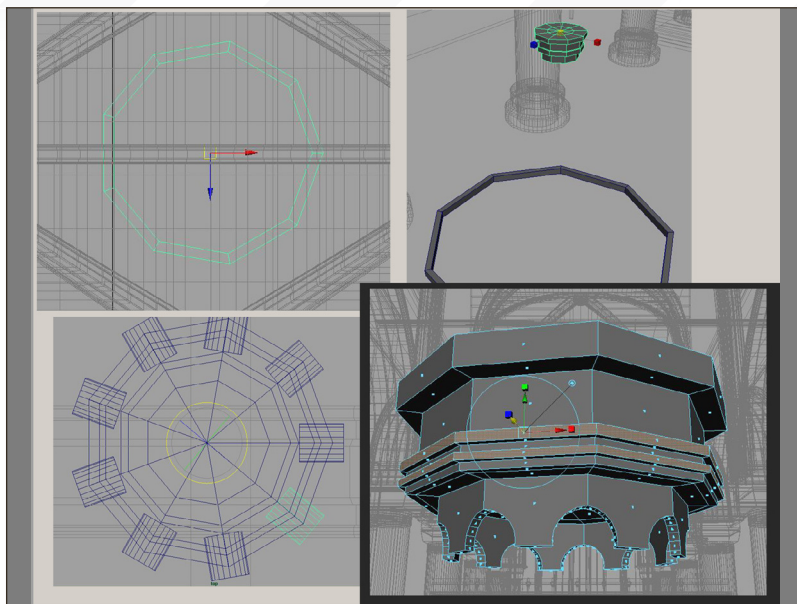


Fig 20

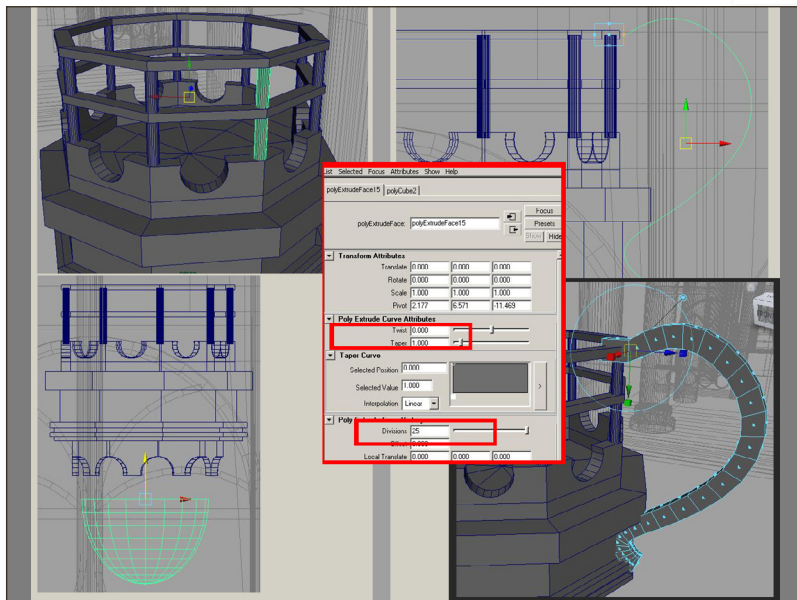
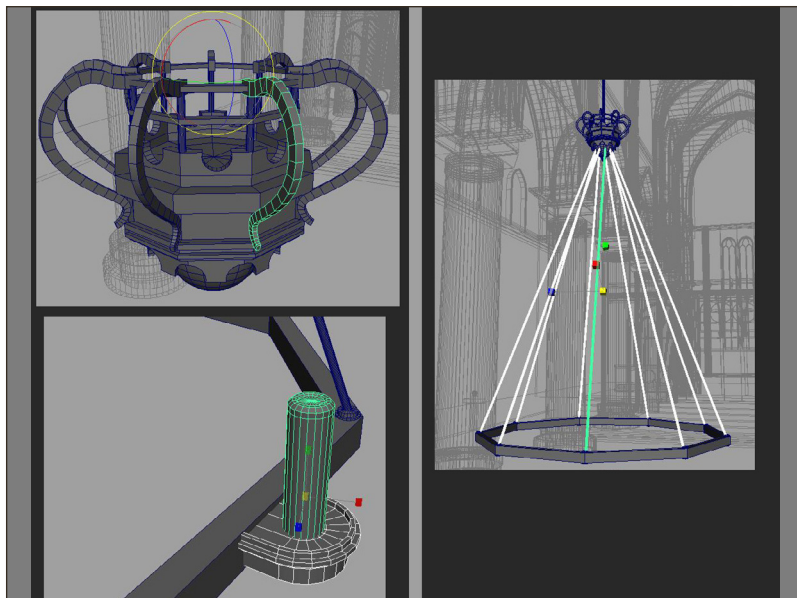


Fig 21



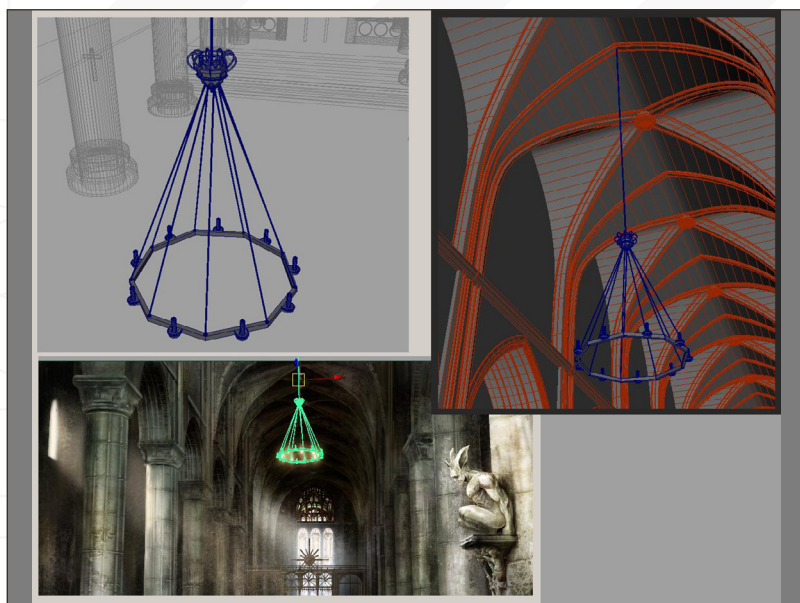


Fig 22

scale so that it matches the 2D concept image (Fig.22).

Basically all the necessary objects have now been created. We'll leave some details to the texturing; for example, the wall behind the altar or the detail on the capital. In the next part of tutorial, a ZBrush artist will guide us through how to create the statue on the column by using the ZBrush program, and after this we will start to texture our scene.

I hope you enjoyed this part of tutorial; thanks and see you again later (Fig.23).

GOthic CHURCH INTERIOR CREATION PART 1: MODELLING THE INTERIOR

TIONG-SEAH YAP

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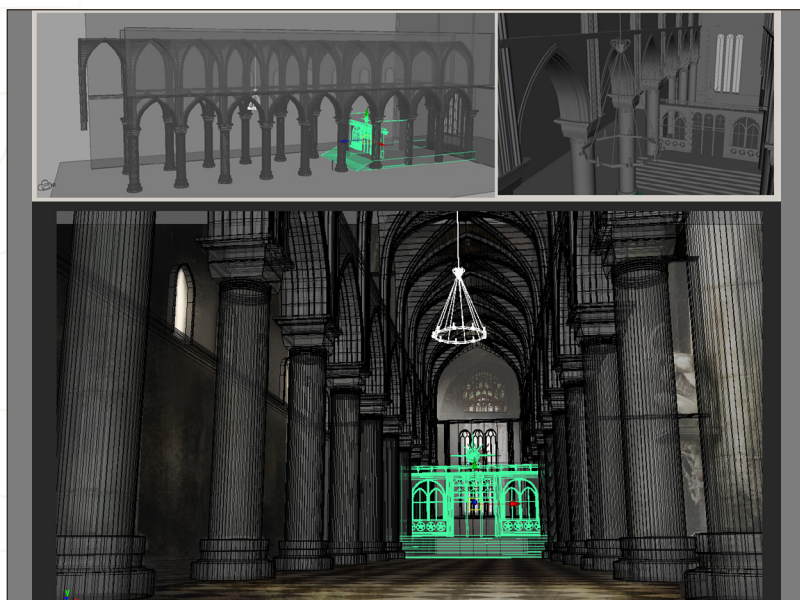
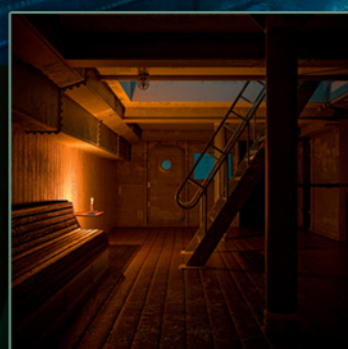
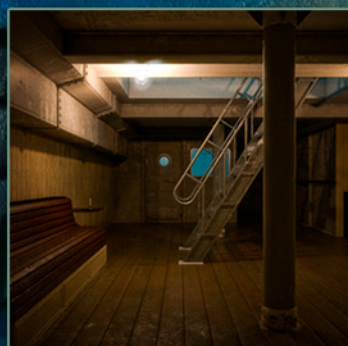
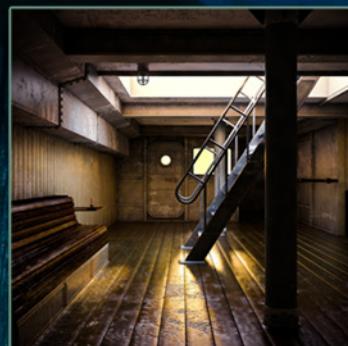


Fig 23



3D environment lighting

Downloadable Tutorial EBook

Introduction

3D Environment Lighting is a downloadable tutorial ebook series, where over the course of the six chapters we will be detailing techniques on lighting an environment under a number of different conditions. Each chapter will cover a step-by-step guide to setting up lights, aimed at portraying the scene in a specific manner.

Chapter 01: Sunny Afternoon

Chapter 02: Twilight

Chapter 03: Moonlight

Chapter 04: Electrical

Chapter 05: Candlelight

Chapter 06: Underwater

Environment Lighting
Designed & Modelled by Richard Tilbury

Created for the following programs
3DS Max by Luciano Iurino,
Cinema 4D by Giuseppe Guglielmucci & Niki Bartucci,
Lightwave by Roman 'dOUGH-CGI' Kessler
Maya by Florian Wild,
Softimage XSI by Luciano Iurino



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Gothic Church

Interior Creation

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PART 1: This tutorial will outline some of the prominent approaches to building the church interior. We will cover some of the key methods and modifiers responsible for creating the scene and core geometry.

PART 2: Will focus on the creation of the gargoyle which will be mounted on one of the columns. This tutorial will orientate around Zbrush and its powerful sculpting tools and show how a detailed model can evolve from simple ZSpheres.

PART 3: This part will detail the texturing phase of the series and deal with mapping and unwrapping key areas of geometry alongside the gargoyle.

PART 4: Lighting and rendering will be the focus in this tutorial. Light rigs and a variety of render passes will be explained in readiness for part 5; the post production.

PART 5: This the final part of the series will show how the various render passes are composited in Photoshop to create a final render. An account of some of Photoshop's tools will show how versatile this approach can be and show the value of multiple passes for post production.



Gothic Church

INTERIOR CREATION

PART 1: MODELLING THE INTERIOR

CREATED IN:

Modo

INTRODUCTION

In the first part of this series we will set about modelling a church interior, basing it off a concept that's been given to us. I will show some of the tools that I use for most of my modelling in Modo. After you've gained an understanding of these basic tools, it is then quite easy to explore the rest of the tools available and unlock the full power of Modo.

Before we dive into the modelling, let's have a look at the concept image that we're going to base our model on, and try to break it down into the different parts we need (**Fig.01**).

Looking at the concept we can see that it's basically built up of a lot of repeating elements, which makes our job that much easier, since we only have to build one of each element and then copy that.

MODELLING

We'll begin with something simple to introduce you to what is, in my opinion, the most important modelling tool in Modo: Bevel (B). It is in fact several tools built into one. Edge-bevel, Inset, Extrude and Vertex Chamfer are all accessed through the Bevel button.

The first piece we will model is the base of the columns in the concept. Start by creating a simple polygonal circle (**Fig.02**).

After that it's just a matter of using the bevel tool to create the shape we want. As you can see from the image series, we need to start by extruding in polygon mode to create the shapes,

Fig 01

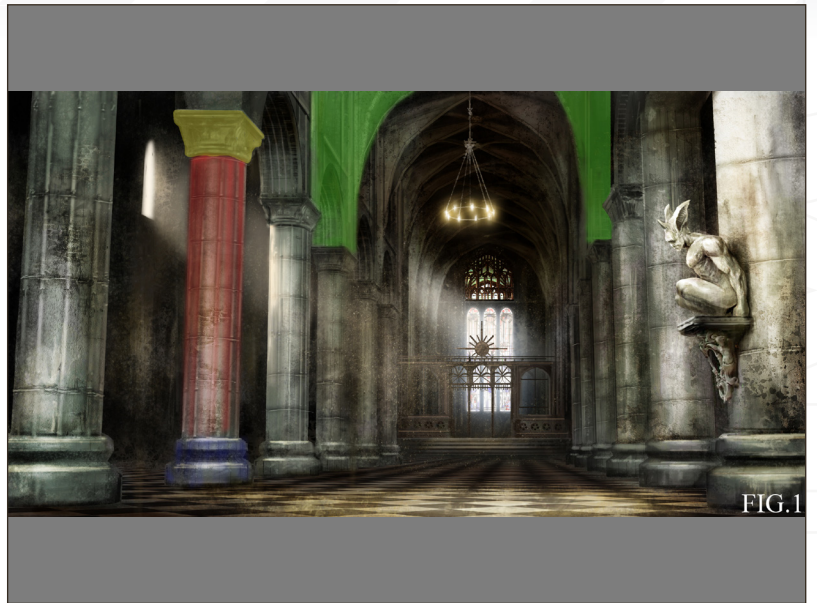


FIG.1

Fig 02

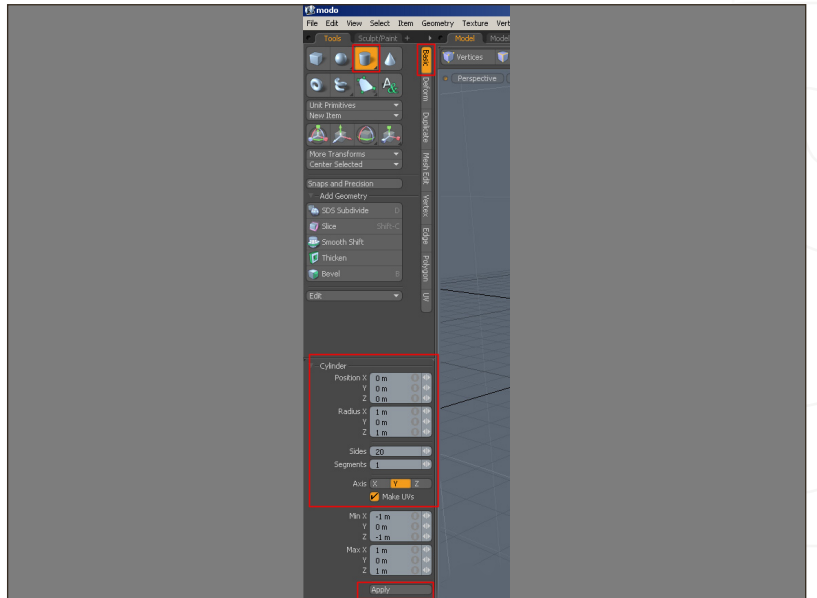
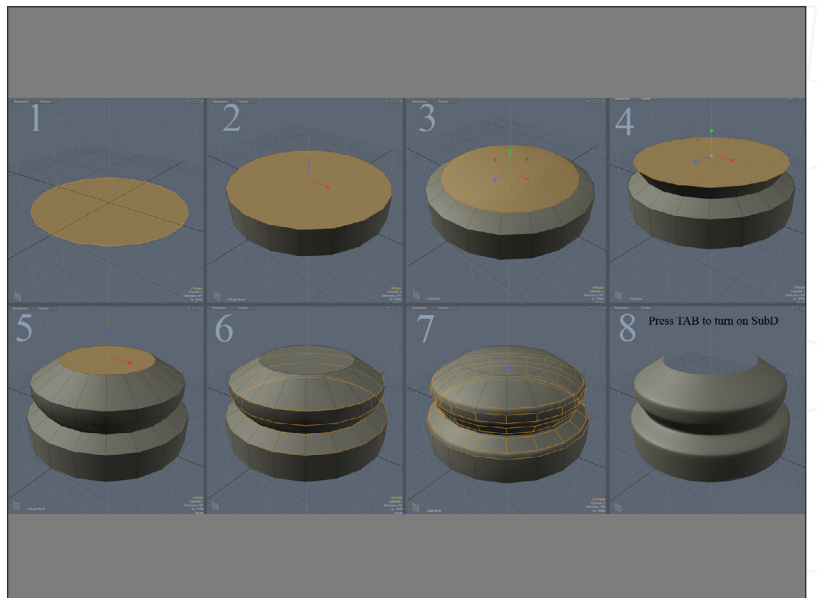


Fig 03



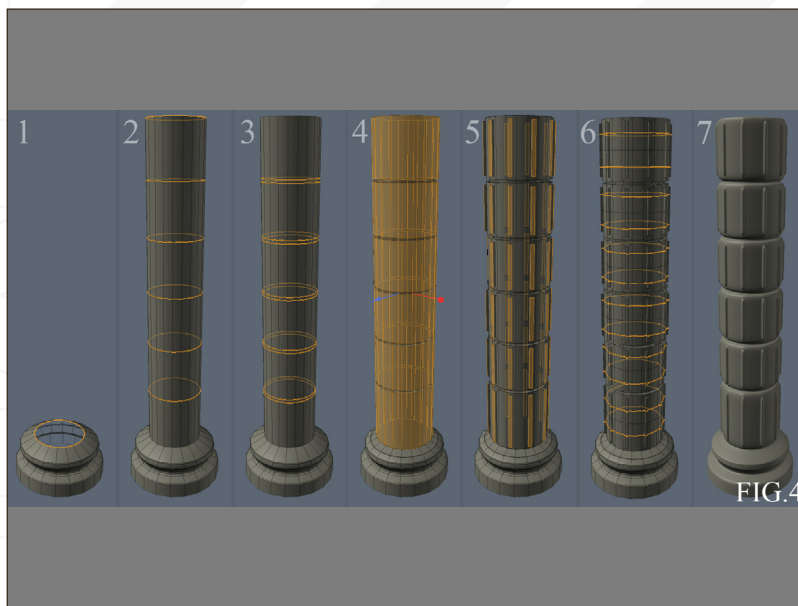


Fig 04

then switching over to edge beveling to give the edges that smooth look (**Fig.03**). You can switch between Vertex, Edge and Polygon selection with the 1, 2 and 3 keys on your keyboard. With the pillar base as a starting point we will move on to create the rest of the pillar by using the Extend tool (Z), and our trusty friend Bevel. Take a look at **Fig.04** and start extending! In the concept you can see that the pillar looks to be made out of several cylindrical blocks stacked on each other – to achieve that we will once again use Bevel. To select rows of polygons, as shown in #4, just select two consecutive polygons then hold down the “Up” key on your keyboard. To select edge loops, simply double click on an edge and that entire loop will be selected.

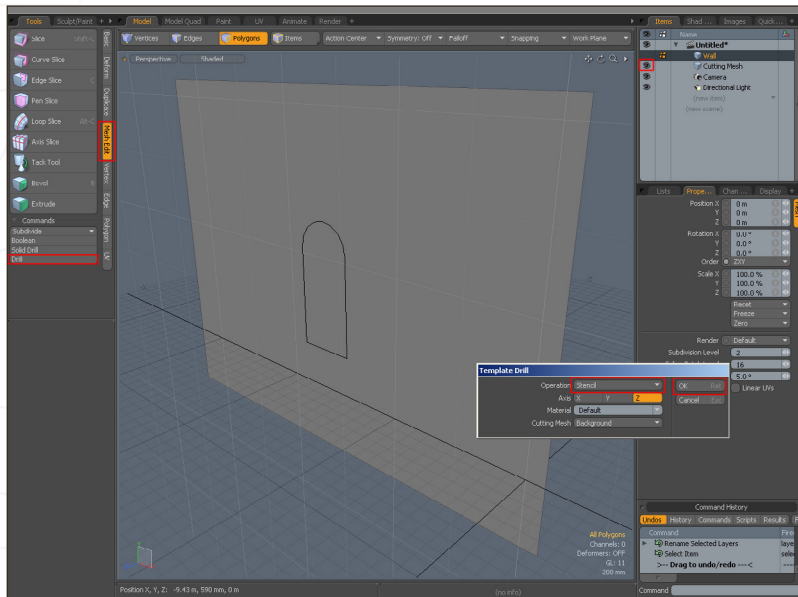


Fig 05

As shown in #6, use a Loop Slice (Alt-C) to divide the pillar sections further. As with most of the times when we add geometry that doesn't add to the overall shape of the object, this helps to better support the shape when turning on SubD. If we didn't do this, it would collapse completely and look very blobby and undefined, which is not at all what we are looking for in a stone pillar.

The windows can be created using the Drill tool. In short, this tool allows you to stencil the shape of a mesh onto another. So let's create a simple plane using the box-primitive tool. Then create another plane in the shape we want the window to be and place the window plane as a background layer, in front of the wall plane. Use the Drill tool to imprint the window on the wall (**Fig.05**). Extrude the stencilled polygon inward to give some thickness to the wall. Also, make sure you clean up the geometry with Edge Slice (C), making it preferably all quads and triangles (**Fig.06**). Edge Slice allows you to draw an edge between two specified points.

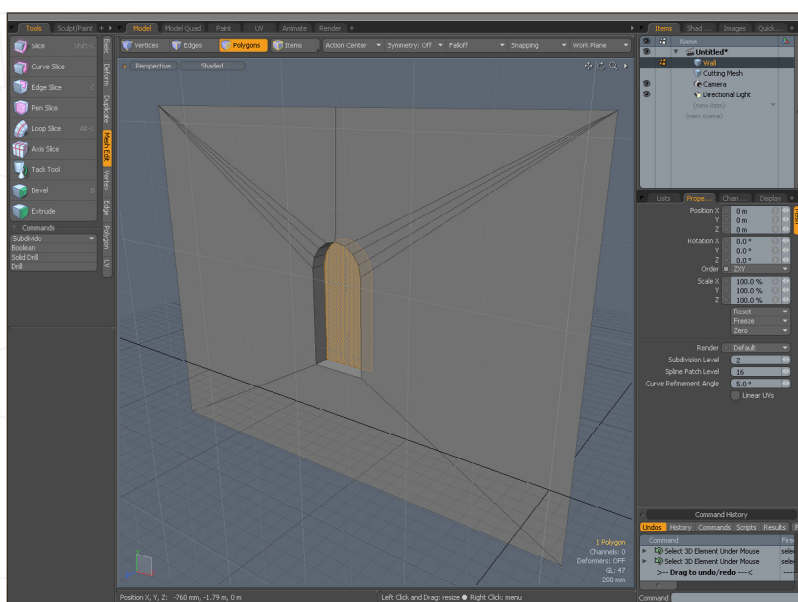


Fig 06

To create the window frame, select the extruded polygons and copy them to a new layer (CTRL-C CTRL-V). Then extrude the copied polygons to give the frame some thickness and create cube primitives in a grid pattern inside the window to make it look like it is built up of lots of small pieces. Finally, never forget to add supporting edges if you plan to turn on SubDs (Fig.07).

The same technique can be used for the big windows at the back of the church, except we can use other primitives to create the patterns in the windows.

For the arches and vaulted ceiling, start by creating the arch from a cylinder that we've deleted half of, and then simply extended edges as shown in Fig.08, using the Extend tool (Z). Finally add some simple ornamentation with the Bevel and Loop Slice tools.

Loop Slice allows us to add new edge loops in-between two existing ones; we can set how many loops we want added in the tool properties menu (Fig.09). In this case, use it to create the extra edge loops needed for the small indentations running along the arch.

Tip: When dealing with an object that's symmetrical in some way, it's almost always best to delete one half of it, model the remaining half to full detail, then mirror it over to the other side by duplicating it (CTRL-C CTRL-V), scale it to -100% in the axis you want it mirrored in, and finally merge the vertices where the two halves meet with the Merge Tool (Vertex > Merge Tool).

Fig 07

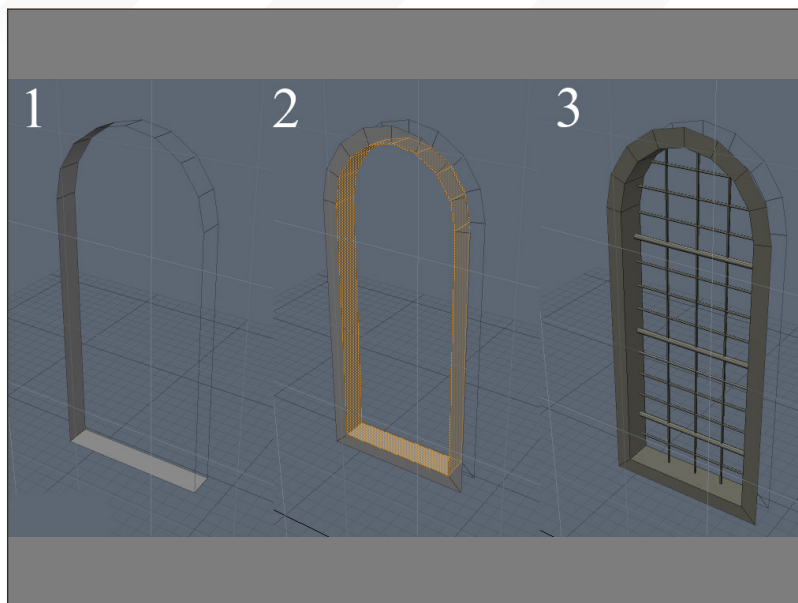


Fig 08

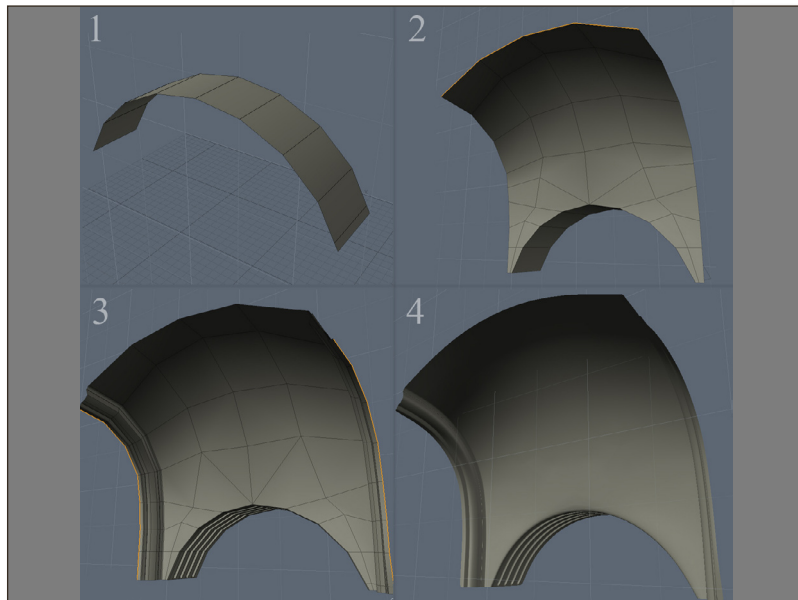
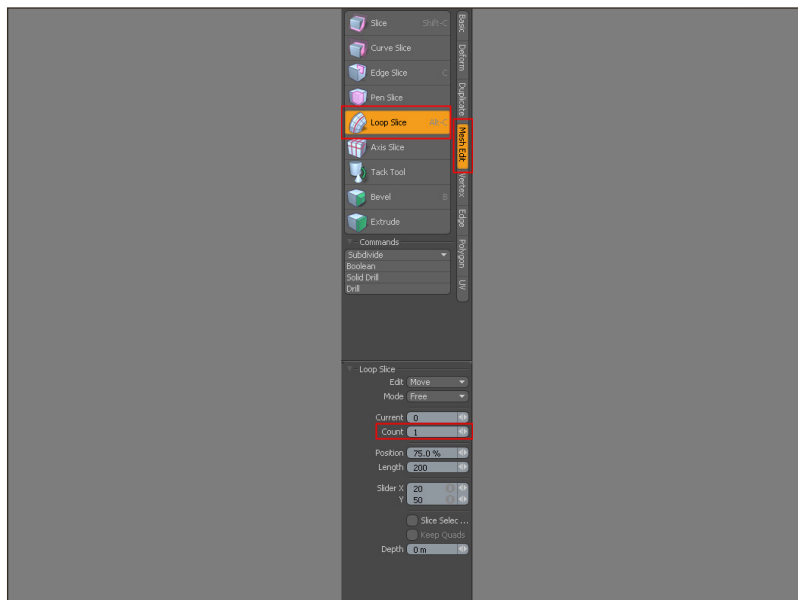


Fig 09



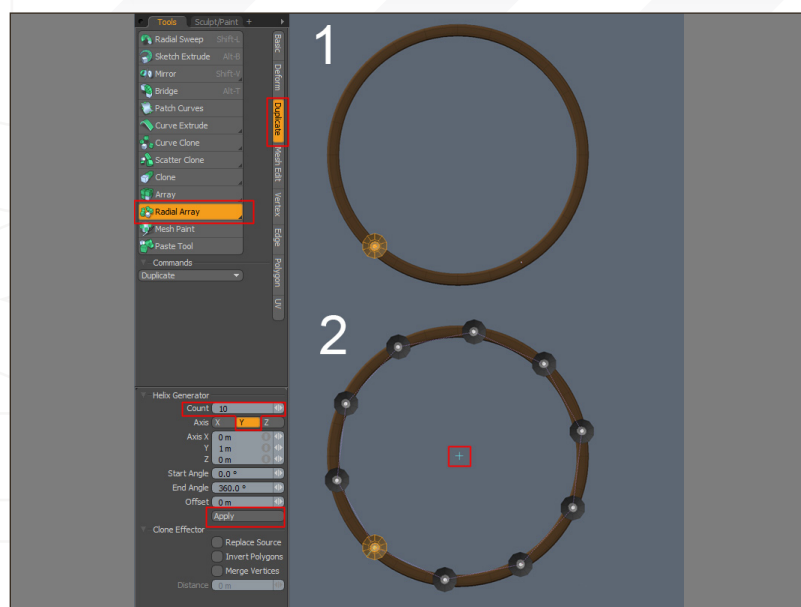


Fig 10

To create the chandelier, use a tool called Radial Array (Duplicate > Radial Array). What it does is take whatever you have selected and duplicates it in a radius around a point chosen by you (**Fig.10**). The easiest way to use Radial Array is to switch to an orthographic view when performing the array; in this case use the Top View. You can change views in the top left corner of the view port, click where it says "Perspective" and you can choose from several different views.



Fig 11

To model the chain links, take a cube, then duplicate it and place the links in by hand. The hooks can also be extruded from a simple cube, and then duplicated with Radial Array (**Fig.11**).

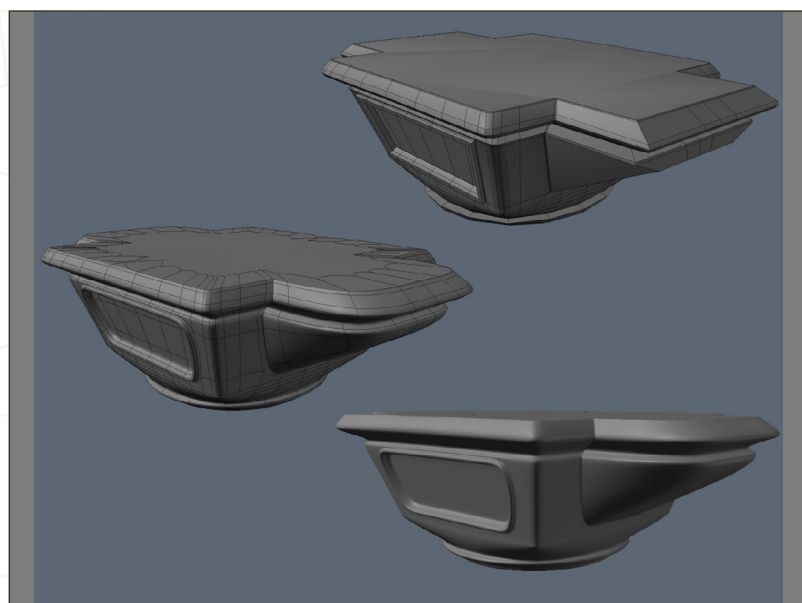


Fig 12

For the top of the pillar, just start with a simple cube, use some smart Beveling, extruding and also use the Freeze command (Geometry > Freeze). Freeze basically freezes the object in its SubD state, giving you a lot more geometry to work with. This is good if you want to add finer details to a mesh without going through the hassle of making some very awkward cuts in the mesh (**Fig.12**).

To create the altar, use most of the tools that have been previously explained in this tutorial and just try to match it as closely as possible to the concept. When we break it down into parts, it is really just a lot of primitives, scaled every which way.

After we have all the objects, all we have to do is place and tile them all in the scene. As we have no actual measurements of the dimensions in the concept scene, we'll need to estimate the distances between the pillars and the height of the ceiling etc. If you compare the model to the concept you can see that there are some differences, especially at the top of the pillars and the ceiling, but the most important thing is to capture the mood of the image. Of course a lot of the mood comes from the textures and the lighting of the scene, both of which will be covered in the two following parts (**Fig.13**).

GOTHIC CHURCH INTERIOR CREATION

PART 1: MODELLING THE INTERIOR

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Fig 13

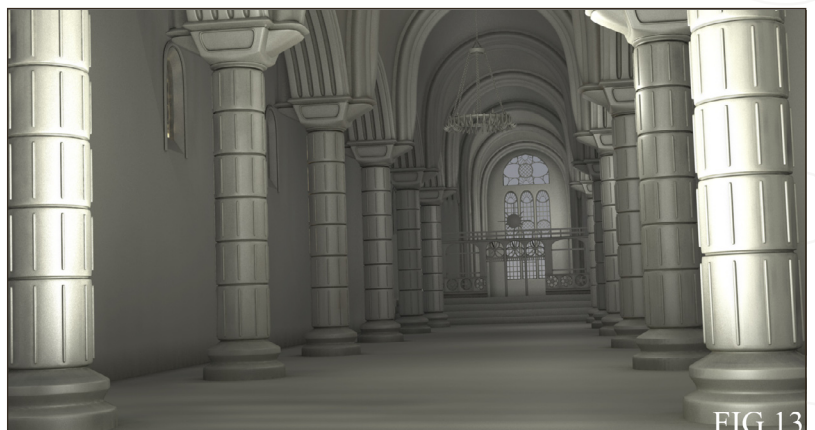
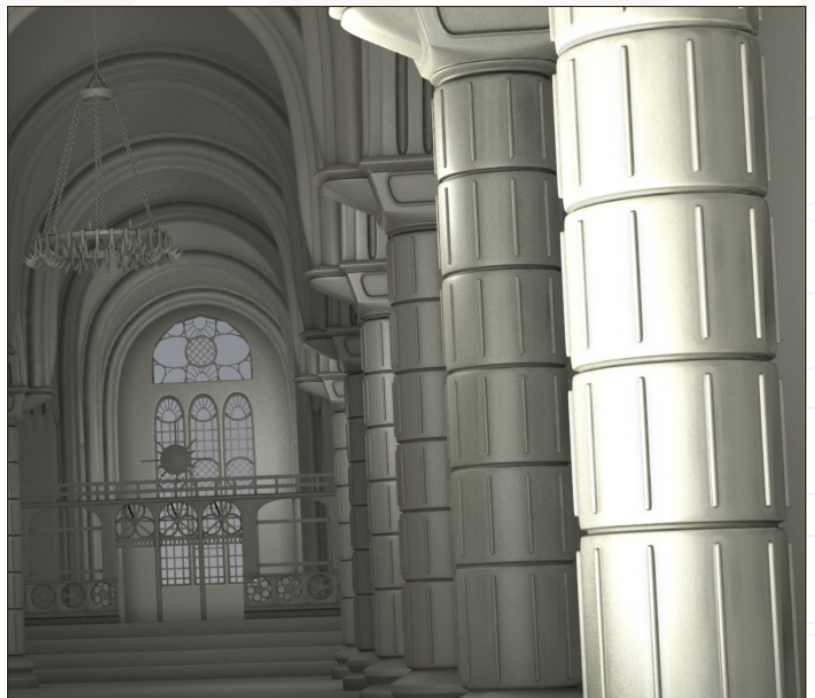


FIG.13